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THESIS

NAVY MARINE CORPS INTRANET: AN ANALYSIS OF ITS APPROACH TO THE CHALLENGES ASSOCIATED WITH SEAT MANAGEMENT CONTRACTING

by

Kenneth F. Bullock

June 2003

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Since 1997, Government agencies have been implementing seat management approaches to information technology contracting. Also known as desktop outsourcing, seat management is a process whereby agencies outsource all maintenance and ownership of their desktop computers, including all required hardware, software, network support, maintenance, and help desk services with pricing computed an a per user - or per seat - basis. The Navy Marine Corps Intranet - or NMCI - is arguably the largest and most complex seat management effort undertaken to date. It is designed to eventually cover approximately 360,000 Navy and Marine Corps users.

This thesis explores the seat management method of contracting and the challenges inherent in this method of acquiring desktop computing power. Such challenges include benchmarking technical performance requirements, establishing performance measures, creating effective incentives, preparing for the transition to seat management, and managing the required culture change. The NMCI program's approach to addressing these challenges is analyzed and recommendations are provided as to where improvements can be made in order to increase the likelihood that NMCI will achieve its expected benefits.

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NAVY MARINE CORPS INTRANET: AN ANALYSIS OF ITS APPROACH TO THE CHALLANGES ASSOCIATED WITH SEAT MANAGEMENT CONTRACTING

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requirements for the degree of

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ABSTRACT

Since 1997, Government agencies have been implementing seat management approaches to information technology contracting. Also known as desktop outsourcing, seat management is a process whereby agencies outsource all maintenance and ownership of their desktop computers, including all required hardware, software, network support, maintenance, and help desk services with pricing computed an a per user - or per seat - basis. The Navy Marine Corps Intranet - or NMCI - is arguably the largest and most complex seat management effort undertaken to date. It is designed to eventually cover approximately 360,000 Navy and Marine Corps users.

This thesis explores the seat management method of contracting and the challenges inherent in this method of acquiring desktop computing power. Such challenges include benchmarking technical performance requirements, establishing performance measures, creating effective incentives, preparing for the transition to seat management, and managing the required culture change. The NMCI program's approach to addressing these challenges is analyzed and recommendations are provided as to where improvements can be made in order to increase the likelihood that NMCI will achieve its expected benefits.

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LIST OF ACRONYMS

ACO	Administrative Contracting Officer
AOR	Assumption of Responsibility
BAPCo	Business Applications Performance Corporation
BCA	Business Case Analysis
CA	Customer Advocate
CIO	Chief Information Officer
CNO	Chief of Naval Operations
COR	Contracting Officer's Representative
COTS	Commercial Off the Shelf
CTF	Commander Task Force
CTR	Customer Technical Representative
DLA	Defense Logistics Agency
DoD	Department of Defense
DoN	Department of the Navy
EDS	Electronic Data Systems Corporation
ERA	Entity Relationship Agreement
FAR	Federal Acquisition Regulation
FOC	Full Operational Capability
GAO	General Accounting Office
GSA	General Services Administration
IA	Information Assurance
IDIQ	Indefinite Delivery Indefinite Quantity
IIP	Indian Incentive Program
IRB	Incentive Review Board
IT	Information Technology
LACO	Lead Administrative Contracting Officer
MAIS	Major Automated Information System
NMCI	Navy Marine Corps Intranet

ODIN	Outsourcing Desktop Initiative for NASA
OMB	Office of Management and Budget
PC	Personal Computer
PCO	Procuring Contracting Officer
PEO-IT	Program Executive Officer for Information Technology
PMO	Program Management Office
PRS	Performance Requirement Summary
PSQ	Preliminary Site Questionnaire
PWS	Performance Work Statement
RIF	Reduction in Force
SCM	Site Concurrence Memorandum
SECNAV	Secretary of the Navy
SLA	Service Level Agreement
SLIP	Service Level Incentive and Penalty
SOW	Statement of Work
SPEC	Standard Performance Evaluation Corporation
TCO	Total Cost of Ownership
USDA	United Stated Department of Agriculture
VPN	Virtual Private Network

I. INTRODUCTION

A. PURPOSE

This thesis explores the "seat management" method of contracting for desktop information technology (IT) services. The research defines seat management and identifies the expected benefits of this acquisition approach, as well as explores the significant challenges that exist when implementing such an approach. The Navy Marine Corps Intranet (NMCI) program is evaluated for how well it is responding to those challenges.

B. BACKGROUND

Since 1997, Government agencies have been implementing seat management approaches to information technology (IT) contracting. Also known as desktop outsourcing, seat management is the process wherein organizations outsource the maintenance and ownership of their desktop personal computers (PCs), including all required hardware, software, network support, and help desk services. In its simplest terms, seat management involves buying desktop computing power as a unified service with pricing computed on a "per user" - or a "per seat" - basis (hence the term seat management).

Accordingly, it differs from traditional outsourcing or contracting approaches where an organization might have maintained ownership of the PCs, contracted for installation services, and then outsourced help desk support. In a seat management environment, the contractor maintains ownership of all the resources (network hardware, desktop hardware, software, etc.) and delivers the resultant computing capability as a service, sometimes likened to a utility.

There can be many possible benefits derived from seat management contracting. However, lower costs may not necessarily be one of them. While organizations that embark on a seat management approach hope to save money, most realized benefits are in the area of quality improvement. With proper structuring of the requirements and the

contract, commercial expertise and best practices can be leveraged to result in improvements such as better response time, more reliable system availability, and/or reduced downtime.

The NMCI contract was awarded in October 2000, and is a multi-year contract pursuant to Federal Acquisition Regulation (FAR) Subpart 17.1. The performance-based, indefinite delivery/indefinite quantity (IDIQ) contract with Electronic Data Systems (EDS) Corporation is expected to eventually cover roughly 360,000 Navy and Marine Corps users. The five-year base period (covering fiscal years 2001 through 2005), plus the three-year option period (covering fiscal years 2006 through 2008), have a combined maximum value of $6.9 billion.

NMCI is arguably the largest and most complex seat management effort undertaken to date. In addition to the generic benefits noted above, NMCI hopes to benefit the Navy and Marine Corps in other ways by creating collateral savings from eliminating many redundant networks and applications, creating increased collaboration abilities, and achieving increased network security.

There are many challenges and issues involved with a seat management approach to IT contracting, particularly an approach as large and complex as NMCI. Examples of these challenges include benchmarking technical performance requirements, establishing effective performance measures, creating effective incentives, preparing for the transition to seat management, and managing the required culture change.

The objective of this thesis is to evaluate how well the NMCI program is responding to the challenges inherent in using a seat management approach to contracting for desktop IT services. Recommendations are provided as to where improvements can be made in order to increase the likelihood that that NMCI will achieve its expected benefits.

C. RESEARCH QUESTIONS

1. Primary Research Question

How well is the NMCI program responding to the challenges associated with seat management contracting and where can improvements be made?

2. Secondary Research Questions

a. What is the seat management approach to contracting for IT resources?

b. What are the expected benefits of a seat management approach?

c. What are the expected benefits of NMCI?

d. What are the challenges and concerns associated with seat management contracting?

e. How well is the NMCI program responding to those challenges?

D. SCOPE AND LIMITATIONS

The scope of this thesis includes an in depth analysis of the NMCI contract and associated execution plans from the Contracting Officer perspective. This analysis evaluates how well NMCI is responding to the key challenges inherent in seat management contracting (or IT outsourcing in general), which are identified through the literature review. The analysis is from a business perspective. Therefore, a technical analysis of the security (i.e., "information assurance") requirements of NMCI, for example, is beyond the scope of this thesis. Throughout this thesis, the terms "contractor," "vendor," and "service provider" are used synonymously.

E. METHODOLOGY

The research for this thesis consisted of several steps. First, a comprehensive literature review of journal articles, General Accounting Office (GAO) reports, and other library information resources was conducted. Second, an in-depth content analysis was conducted of the NMCI contract, the NMCI Execution Plan, and other NMCI-related documentation to identify the program's response to key challenges. Third, an interview was conducted with key NMCI administration personnel such as the Lead Administrative Contracting Officer (LACO) to further explore how NMCI is dealing with the most

significant issues. As a result of these steps, the researcher was able to evaluate the effectiveness of the NMCI program's response to the key challenges inherent in seat management contracting, evaluate the likelihood that NCMI will satisfactorily meet those challenges as it strives to achieve its desired benefits, identify areas where improvement is needed, and recommend specific changes.

F. BENEFITS OF THE RESEARCH

This thesis analyzes how the NMCI program is responding to the challenges inherent in seat management contracting. Recommendations are provided as to how NMCI can better meet those challenges. As the program evolves from the transition stage, through implementation, to a steady-state status, these recommendations may prove helpful to key NMCI program officials. This thesis is also available to other organizations seeking to design a seat management contracting approach.

G. ORGANIZATION OF THE THESIS

Following this introductory chapter, Chapter II provides a more thorough definition of seat management contracting, a description of the NMCI program, an examination of the benefits of seat management contracting in general, and a discussion of the expected benefits of NMCI.

Chapter III provides a detailed examination of the challenges and concerns associated with the seat management method of contracting. Typical challenges involve benchmarking technical performance requirements, establishing effective performance measures, identifying effective incentives, preparing for the transition to seat management, and managing the required culture change.

Chapter IV provides an in depth analysis of the NMCI program's response to the challenges explored in the preceding chapter. The effectiveness of NMCI's approach to handling the challenges inherent in the seat management method of IT contracting will greatly influence the likelihood that the program will achieve its expected benefits.

Chapter V provides conclusions, recommendations, and answers to the research questions. This chapter also suggests areas for further research.

II. SEAT MANAGEMENT CONTRACTING

A. INTRODUCTION

This chapter discusses seat management contracting and the NMCI program in order to establish the background and reference point for the analysis of the challenges associated with this contracting method, and the detailed analysis of NMCI's approach to those challenges, that will come in later chapters. This chapter provides a working definition of seat management contracting and a description of the NMCI program. The chapter also provides an examination of the benefits of seat management contracting in general along with a discussion of the expected benefits of NMCI.

B. DEFINITION AND EVIRONMENT

Sometimes referred to as "desktop outsourcing," seat management is the process wherein organizations outsource the maintenance and ownership of their personal computers (PCs), including all required components and support -- from hardware and software to network support and help desk services [Ref. 1]. In the Government arena, seat management is when "federal agencies turn over their computers and networks to private contractors, who handle everything from buying and maintaining the technology to providing support services." [Ref. 2] The General Services Administration (GSA), one of the Government agencies credited with pioneering this approach, defines seat management in a broader sense as a way for agencies "to acquire their entire distributed computing environment, including managed lifecycle support, from a single point of contact." [Ref. 3]

In its simplest terms, seat management is where an organization buys its desktop computing power as a "unified service" with pricing computed on a per user (or per "seat") basis whereby the contractor is responsible to deliver all hardware, software, network support, help desk services, planning/design, and maintenance/installation services [Ref. 3]. Seat management is more than leasing…it has been described as a "radical reinvention" of how an organization obtains its desktop computing capability when everything is outsourced [Ref. 1]. Accordingly, it differs from traditional

outsourcing or contracting approaches where an organization might have maintained ownership of the PCs, contracted for installation services, and then outsourced network support and help desk services. In a seat management environment, the contractor maintains ownership of all the resources (network hardware, desktop hardware, software, etc.) and delivers the resultant computing capability - and all related support - as a service, sometimes likened to a utility. Seat management contracts are classified as service contracts.

The theory is that, like most outsourcing initiatives, by transferring ownership and responsibility of its IT resources, an organization can focus on its core missions and leave maintenance of IT capabilities to firms that specialize in it [Ref. 1]. Ideally, such an approach saves the organization both the cost and difficulty of managing the IT resources [Ref. 2]. According to the Outsourcing Institute, IT continues to be the area where most outsourcing dollars are spent, and IT represents more than 20% of all outsourcing expenditures [Ref. 4].

Outsourcing of IT (including through seat management types of approaches) is likely to be a large piece of that spending as businesses look for the most promising ways to maximize their return on their IT investments. Within the Department of Defense (DoD), IT outsourcing initiatives are likely to increase. Speaking at the kick-off ceremony of the 2001 Acquisition and Logistics Excellence Week, Defense Secretary Donald Rumsfeld stated that focusing on the core missions of Defense and contracting out the rest makes sense, and that "surely we can outsource more computer system support." [Ref. 5]

Seat management approaches to acquiring information technology first appeared in the Government during the late 1990s. Two early examples were the Outsourcing Desktop Initiative for NASA (ODIN) and GSA's Seat Management Services contract. Arguably, the most comprehensive Government seat management contract to date is the Navy/Marine Corps Intranet (NMCI).

C. NAVY MARINE CORPS INTRANET (NMCI)

The NMCI contract was awarded in October 2000, and is a multi-year contract pursuant to Federal Acquisition Regulation (FAR) Subpart 17.1. The performance-based, indefinite delivery/indefinite quantity (IDIQ) contract with Electronic Data Systems (EDS) Corporation is expected to eventually cover roughly 360,000 Navy and Marine Corps users. The five-year base period, covering fiscal years 2001 through 2005, has a maximum value of $4.1 billion. A subsequent three-year option period, covering fiscal years 2006 through 2008, has a maximum value of $2.8 billion. Therefore, the contract maximum value (if the option period is exercised) totals $6.9 billion. [Ref. 6]

NMCI actually takes the seat management concept one step further. Traditional seat management approaches cover only desktop computing (i.e., networked PCs). The EDS program executive for NMCI has been quoted describing NMCI as "an enterprise-wide, managed service for voice, video, and data exchange." [Ref. 7] The "access devices" for NMCI include networked desktop PCs, laptops, portable and embarkable workstations, etc., with local- and wide-area connectivity. Both classified and non-classified connectivity are available. NMCI provides the use of the access devices, help desk support, network operations centers, and all necessary processes and technologies included in the seat pricing.

Notwithstanding the inclusion of laptops, portable workstations, and even voice seats (phones), the largest component of NMCI is the networked desktop workstations as would be found in a traditional seat management contract. The desktop workstations have been the first services rolled out under NMCI and the focus of test and evaluation processes as Congressional approval has been sought for further rollout funding.

Detailed descriptions of various aspects of the NMCI contract, and of related NMCI program execution efforts, are provided in later chapters of this thesis.

D. EXPECTED BENEFITS OF SEAT MANAGEMENT AND OF NMCI

1. Cost Issues

There are many possible benefits to be derived from seat management contracting. However, lower costs may not necessarily be one of them. In some early

instances, seat management appeared to offer large cost savings. For instance, the cost per seat at one NASA facility under the early ODIN seat management program was projected to range from $2,000 to $3,400 annually when earlier studies had apparently shown the actual annual costs to the agency (prior to seat management) to average $8,000 per seat. The large apparent savings were quickly criticized based on the assertion that the ODIN per-seat figures represented contract dollars divided by the number of seats. However, a portion of the seats called for by the contract did not represent full-service PCs, which understated the per seat projections. [Ref. 8]

A more realistic example might be the NMCI contract. The original Business Case Analysis (BCA) for NMCI was conducted in FY00. An update to the BCA was prepared for submission to Congress in December 2001. The update reflected that the average "as is" cost per seat for first increment Navy sites was $3,851 and the new cost under NMCI would compute to $3,412 [Ref. 9]. This represented an apparent savings of 11%, which while impressive, is not the huge savings some earlier seat management proponents tried to portray. When the maximum incentive of $400 per seat is factored into the per-seat costs, the NMCI figure could increase to $3,812, which would only be one percent less than the average "as is" seat cost.

While there have been success stories in the private sector where outsourcing IT resources have produced cost savings, there are several constraints that prevent the Government from realizing similar savings. Industry has tax incentives, investment write-offs, and business related savings not available to the Government; and industry has less oversight requirements and less difficulty when it comes to reducing organic workforces [Ref 10]. These reasons make it less likely that the Government would achieve noticeable cost savings from seat management contracting in comparison to the commercial world.

While lower costs are not necessarily an outcome of seat management contracting, it would appear that at least the costs are not higher. However, this is not really the case. When a sizeable seat management contract is awarded, there are direct (and indirect) costs associated with managing the contract. It can cost between five and seven percent of the contract value to manage and oversee the contract [Ref. 10]. In the

NMCI example, this could eliminate any cost savings if the contractor earns only one-half of the maximum per-seat incentive.

Considering the massive organization that the Navy has established to manage NMCI, the five to seven percent estimate may, in fact, be conservative. The NMCI management organization as it was initially designed included participation from the offices of the Department of the Navy Chief Information Officer (DoN CIO), Chief of Naval Operations (CNO), and Commandant of the Marine Corps, along with the Program Executive Officer for IT (PEO-IT), two program management offices (PMOs) [one for the Navy and one for the Marine Corps], an Executive Council, a Stakeholders Council, Enterprise Action Groups, and operational control under the Commander Task Force (CTF) NMCI which was led by a Flag officer [Ref. 11]. (This elaborate management structure was streamlined somewhat in early 2002 when the Navy appointed a single admiral to manage the project in a streamlined authority structure [Ref. 12].)

In addition to the high-level management structure described above (both before and after the streamlining), the contract is administered by a Procuring Contracting Officer (PCO) organization, an Administrative Contracting Officer (ACO) organization [which includes a Lead ACO office and more than twenty Local ACOs], a dozen Contracting Officer Representatives (CORs), numerous Customer Technical Representatives (CTRs), and several Customer Advocates (CAs). The large organization established to manage and oversee the NMCI contract represents additional costs to the Government beyond the face value of the services ordered under the contract.

2. Technical Issues

Although lower cost is not necessarily a benefit of seat management contracting approaches, there are nevertheless some distinct and tangible advantages. While GSA has admitted that "those who think you go to outsourcing or seat [management] simply to save money are missing the boat [Ref. 13]," William N. Washington, writing in the Spring 1999 issue of Acquisition Review Quarterly, indicates that "most gains with outsourcing [of IT] have been quality improvement." [Ref. 10]

With proper structuring of the requirements and the contract, commercial expertise and best practices can be leveraged to result in better response time, more

reliable system availability, reduced downtime, etc. The structuring of the requirements and contract can lead to some of the key challenges with this method of contracting (such as benchmarking technical performance requirements, establishing effective performance measures, identifying effective incentives, etc.). These challenges are explored in later chapters of this thesis. Only by effectively solving these and other potential challenges can any quality improvement benefits be obtained.

Another way of looking at the potential benefits of seat management is from the perspective of enterprise management. One Government official indicated that by using seat management, "we hope to save money. But that is not our primary driver. It's enterprise management." [Ref. 13] Once fully implemented, the NMCI contract will consolidate Navy and Marine Corps networks at over 300 military bases into a single, enterprise-wide managed service. [Ref. 9] Benefits derived from an enterprise-wide approach include improved interoperability and access (as enterprise-wide approaches often replace numerous smaller networks), more visibility of IT costs, and other possibilities.

There can be collateral savings as a result of an enterprise-wide approach to implementing seat management. Making the transition to a common operating system and common operating environment can lead to real savings in logistics and software support, while increasing the ability of those within the enterprise to collaborate using common sets of software. One way of achieving the savings in software support is to streamline the number of applications being used to only those that are truly necessary and/or those that can be used across the enterprise. Across the Navy and Marine Corps, 3955 separate applications were identified and, of those, 1915 were eliminated. [Ref. 14]

The ability to collaborate using an enterprise-wide network and common software applications can have tremendous benefits beyond savings in logistics and support. In the case of the NMCI contract, Admiral Robert Natter, Commander in Chief, Atlantic Fleet, noted that "it allows us to maintain a technological advantage over any potential enemy." An NMCI Executive White Paper Progress Report dated August 22, 2001, stated that "NMCI has everything to do with warfighting… the Navy becomes a complete fighting unit from the front of the battle line all the way back to the furthest reaches of our

warehouses and laboratories." This is because immediate information can be exchanged between the warfighters in the field and the shore-based support structures. It is also worth noting that in the NMCI case, sixteen server farms will be put in place with the servers operating at only 50 percent capacity - leaving 50 percent available in case of war, resulting in enhanced lines of communication, improved quality of service, and better reach-back capability. [Ref. 9]

Another benefit of a seat management contract (especially when combined with an enterprise management perspective) is improved security. When consolidating networks, multiple access points are eliminated reducing points of vulnerability in the system [Ref. 9]. The NMCI contract was particularly designed to include stringent information assurance requirements and to implement a level of security management that the Navy and Marine Corps had not previously experienced [Ref. 14]. Considering its military application, the NMCI contract "implements the Defense in Depth approach at all levels by rigorous implementation of firewalls, content scanners, intrusion detection systems and Virtual Private Networks (VPNs)." [Ref. 9]

"Technology refreshment" is another advantage of seat management contracting. Technology refreshment has been defined as the periodic replacement of commercial off-the-shelf (COTS) components such as processors, displays, operating systems, software, etc., to support the continued operation of the system through an indefinite service life. Technology refreshment is a way to extend the useful life of the IT resources while keeping up with technological advances. Such planned upgrades not only ensure that systems stay current with the latest commercial technology, they also allow the organization to stay ahead of the "obsolescence curve." [Ref. 15]

In the information technology arena, advances have been coming so quickly that it is a huge burden on an organization to plan (and budget) for upgrades in the traditional fashion. By incorporating a technology refreshment requirement into a seat management contract, the vendor becomes responsible for planning and implementing the upgrades with no additional costs beyond the already known seat pricing. The NMCI contract, for example, contains technology refreshment requirements that software is updated annually

or to maintain one revision from the current state, while hardware is updated every three years [Ref. 7].

Even when the seat management contract does not specifically require technology refreshment, vendors are motivated to insert the latest technology anyway because the latest equipment is easier to maintain than older systems [Ref. 1]. Ultimately, though, this likely comes down to an economic decision. The vendor would simply decide which strategy reduced its costs (and maximized its profits) - either continuing to maintain outdated systems or performing the upgrades.

Another benefit of seat management contracting is the ability to free up personnel resources that had previously been performing routine tasks associated with the desktop IT resources (e.g., such as helpdesk personnel). By transferring the ownership and responsibility for the resources to commercial vendors who specialize in IT support, employees can focus on an agency's core mission rather than running the desktop systems [Ref. 16]. This is particularly important in the military realm where one of the stated purposes of the NMCI contract is to allow Federal employees to be refocused on core Naval missions [Ref. 9].

This benefit of seat management contracting is even more important in today's climate where the Government is finding it more difficult to compete with the private sector for IT personnel. By freeing agency personnel from the day-to-day routine support tasks, they can perform other, potentially more interesting work and more business-sensitive tasks [Ref. 17]. Meaningful work may help to retain critical IT professionals within the Government.

E. CHAPTER SUMMARY

This chapter discussed seat management contracting as a method of acquiring IT resources, specifically desktop computing capability. In addition to defining seat management contracting, the chapter also provided an overview of the NMCI contract. The chapter concluded with an examination of the benefits of seat management contracting in general along with a discussion of the expected benefits of NMCI.

The next chapter provides a detailed examination of the challenges and concerns associated with the seat management method of contracting. These challenges involve benchmarking technical performance requirements, establishing effective performance measures, creating effective incentives, preparing for the transition to seat management, and managing the required culture change.

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III. CHALLENGES ASSOCIATED WITH SEAT MANAGEMENT

A. INTRODUCTION

This chapter discusses challenges associated with the seat management method of IT contracting. With proper structuring of the requirements and the contract, commercial expertise and best practices are leveraged to result in better response time, more reliable system availability, reduced downtime, etc. The structuring of the requirements and contract can lead to some of the key challenges with this method of contracting.

Significant challenges that must be effectively addressed involve benchmarking technical requirements, establishing effective performance measures, creating effective incentives, preparing for the transition to seat management, and managing the required culture change. It is important to note, however, that these challenges are not unique to seat management contracting. Some of these challenges are common to performance-based service contracting in general, other IT outsourcing efforts, and/or various other acquisition initiatives.

This chapter explores these five challenges in detail from a seat management perspective in order to lay the foundation for the next chapter, Chapter IV, which provides an analysis of the NMCI program's approach to addressing the challenges.

B. BENCHMARKING TECHNICAL REQUIREMENTS

1. The Issue

A significant challenge with IT contracting in general, and seat management contracting specifically, is how to define the technical requirements of the contract in an environment of constant change. Government contracts routinely last 60 months (five years) when option years are included, and can even last for longer periods when procedures such as multi-year or award term contracting are utilized. In the private sector, long-term relationships (lasting more than five years) are quite common in contracts and outsourcing arrangements.

In the IT arena, periods of five years or longer can bring dramatic advances in technology. In the past 20 years, advances in computer technology, data processing

speed, and computer acceptance have been dramatic. Combined with this has been the evolution of the telecommunications industry. For a century, the telephone and its network existed for person-to-person voice communication. However, developments such as fax machines, wireless networks, and the Internet have significantly altered the telecommunications environment. These changes, combined with the advances in computer technology, have merged these two industries. Today, data has surpassed voice as the primary content carried by the telecommunications network. [Ref. 18]

It is a daunting challenge to define the technical requirements of a seat management contract (or any IT contract) in an environment of rapid technological changes. For example, as shown in Figure 1, personal computer (PC) processing speeds have followed "Moore's Law" and increased roughly 60 percent per year during much of the 1990s.

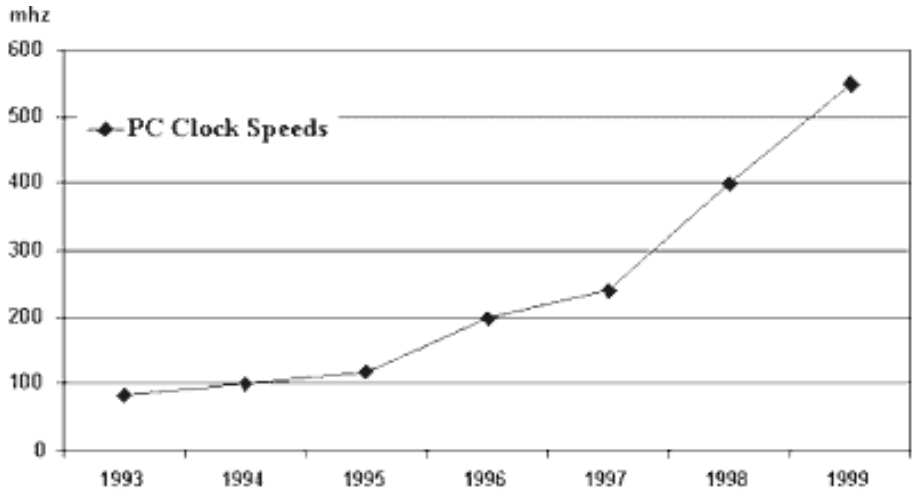

Figure 1. PC Speed Increases during the 1990s. [From: Ref. 18]

Specifically, Moore's Law observed an "exponential growth in the number of transistors per integrated circuit" and predicted that such growth would continue [Ref. 19]. Gordon Moore is Chairman Emeritus of Intel Corporation, a leading producer of PC processors. Figure 2 shows a different depiction of Moore's Law in terms of transistor quantity and Intel brand processors over a 30-year period.

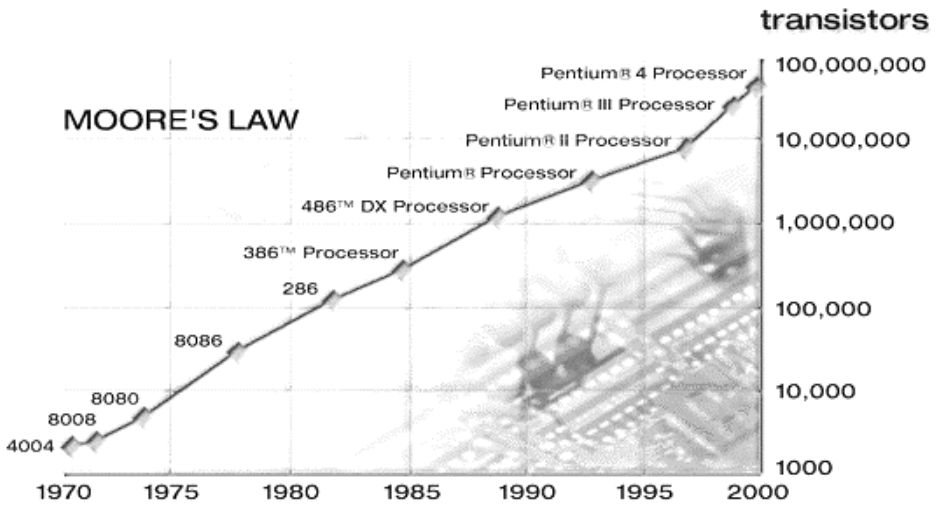

Figure 2. Intel Brand Processors and Transistor Increases. [From: Ref. 19]

Moore's Law, as evidenced by the rapid advances in PC processor speeds, is one example of the constantly changing environment in which contract technical requirements must be defined. Another example is network bandwidth, which has increased by 36 percent per year over the past five years. By 2005, bandwidth is expected to have increased ten-fold over 1998 levels. Fueling the demand for increased bandwidth is the popularity and value of the Internet. The Internet has revolutionized the way we communicate, the way data is transferred, and even the way business is conducted. [Ref. 18]

The rapidly changing technological environment poses a significant challenge to defining the technical requirements of a seat management contract, particularly a contract that may last for many years.

2. Addressing the Issue

In a traditional IT contract (such as the procurement of 100 PCs), it would be logical to set forth exact specifications for the equipment to be purchased (e.g., Pentium IV processor, 256 megabyte memory, 40 gigabyte disk drive, etc.). However, this is clearly not a prudent way to define the technical requirements of the desktop workstations to be obtained under a long-term seat management contract. The natural technology advances in the environment would make such firm specifications outdated

rather quickly. The need would then arise for administratively burdensome, and possibly costly, contract modifications to frequently update the technical specifications.

It has been noted that when defining the technical requirements of the IT resources to be obtained, it is not practical to set "absolute standards for performance in an environment of continual change." A common alternative to specifying firm technical requirements is benchmarking. A benchmark is defined as a minimum industry-based standard that must be met and serves to take into account changes in technology. Setting benchmarks for the technical requirements not only accommodates technology advances, but also allows for monitoring contractor compliance with the requirements to keep up with those changes. [Ref. 20]

In an IT requirement, there are several things that can be benchmarked. For example, benchmarks can be applied to an enterprise system, a specific subsystem (such as processors, memory, or disks), a particular application (such as a word processor or spreadsheet program), and/or to a server-based application (such as a database or web browser). [Ref. 21]

Once a decision is made as to what will be benchmarked, the next step is to determine an appropriate industry-based benchmark to reference. To be effective, the selected benchmark must be simple, consistent, relevant to the end-user requirements, and clearly understood by all parties [Ref. 20]. Benchmarks can be specific or generic. An example of specific benchmarks includes those established by an industry-recognized source such as the Standard Performance Evaluation Corporation (SPEC). SPEC is a non-profit corporation whose purpose is to "establish, maintain and endorse a standardized set of relevant benchmarks" to measure computer performance [Ref. 22]. SPEC has developed a variety of component- and system-level benchmarks for workstations and multi-use servers.

A simpler approach is to use a generic benchmark. One generic benchmark that aims to keep up with technology changes has been dubbed "state-of-the-shelf." This term has been coined to identify the best technology that is currently (and sufficiently) available in the marketplace. When a new technology is developed, it begins as "state-of-the-art." At this point it is usually not widely available, it is expensive compared to other

available solutions, and it may be difficult and costly to implement as a result of being incompatible with interrelated products. (State-of-the-art technology is also risky to implement, as the marketplace may not ultimately adopt the technology.) After a period of time, as state-of-the-art technology becomes more widely available, more affordable, and more readily implemented, it transitions to being state-of-the-shelf. After more time passes, the technology becomes "mainstream" as the price drops further and the technology is widely adopted by users. Eventually, it becomes "value" technology as it moves toward being outdated and newer products move from state-of-the-shelf to become mainstream. [Ref. 23]

Using a state-of-the-shelf benchmark recognizes a commercial best practice balancing of technology, usability, stability, and value. It has been noted that state-of-the-art is technically feasible, while state-of-the-shelf is technically useable. Using a generic benchmark that references the state of the shelf is a practical solution that "transitions technology gains into the contract at a consistent value" trading off price versus performance. [Ref. 23]

Of course, using a generic benchmark such as state-of-the-shelf to meet the challenge of defining technical requirements in a constantly changing environment is not without its own challenges. Just like the technological environment in general, the state-of-the-shelf is also a "moving target" that changes frequently. The challenge is to establish how often the benchmark is revisited and how frequently the technology provided under the seat management (or any IT) contract is updated. This relates to not only the initial technology provided, but also to periodic technology refreshment. ("Technology insertion" is a term that encompasses both the initial provision and the ongoing refreshment of the technology.) Another challenge is obtaining a clear and unambiguous (and undisputed) definition of the state-of-the-shelf technology at the specific times that the contractor provides the technology insertion.

C. EFFECTIVE PERFORMANCE MEASURES

1. The Issue

A challenge inherent in performance based service contracting (including seat management contracts) is defining the minimum acceptable performance standards and establishing a performance monitoring approach to determine whether or not the required performance standards are met. "Performance management" is a term used to encompass these tasks, and is defined broadly as "the activities and processes needed to determine if the contract is being satisfactorily executed." [Ref. 24] More specifically, performance management is the process of monitoring vendor performance against the contractual requirements.

Performance management can be both strategic and tactical. Strategic performance management is concerned with the broader goals of the program, such as program-wide cost, schedule, and technical performance goals. In Government programs, a strategic concern could also involve whether or not the contract is attaining public policy goals. Tactical performance management, on the other hand, is concerned with the vendor's performance against the specific individual services required by the contract and assessing cost, schedule, or technical performances on those individual services. Tactical performance management, therefore, is often dubbed "service level performance management." [Ref. 24]

Performance measures can be both quantitative and qualitative. Most performance metrics, of course, are quantitative. By definition, performance measures should be specific, objective and verifiable so that there are no disputes over whether or not contractually required standards have been met. However, there is a strong argument that qualitative measures are also important. For instance, in some cases, quantitative measures simply do not exist to fully capture a performance measure that is important from either a strategic or a tactical perspective. An example is customer satisfaction. In other cases, qualitative data can "support and enhance" the quantitative measures by providing "depth and meaning" to the numbers. For instance, quantitative data can show poor performance but does not tell why the poor performance occurred or what impact it had. [Ref. 20]

In addition to the strategic vs. tactical, and quantitative vs. qualitative considerations, there are other principles that should be considered in establishing effective performance measures. For example, performance measures should be related to an end result rather than a specific process wherever possible, defined in specific terms and language that prevents multiple interpretations, sufficiently standard to allow for comparison of the vendor's performance against other vendors on similar efforts, and encompass all elements of desired performance. [Ref. 25]

In addition, performance measures should include only items that are clearly (and solely) under the control of the vendor in order to prevent disputes over responsibility for poor performance. It is often beneficial to tie incentives and/or penalties to the performance measures to emphasize their importance and to motivate the vendor to not only meet expectations, but to exceed them. If incentives and/or penalties are tied to the performance measures, it is important to define "mutually exclusive indicators" so that the vendor is not rewarded (or penalized) more than once for the same performance, unless it is specifically desirable to emphasize a particular performance aspect. Finally, historical records should be maintained in order to track performance trends over time. [Ref. 25]

2. Addressing the Issue

Many IT contracts, including seat management arrangements, include performance measures rooted in the tactical performance management concept of service levels (although strategic concerns can also be included). Such service level performance management is usually defined and managed through the use of "service level agreements" or SLAs.

A SLA is defined as a "contracting tool keyed to the customer's expectations" in that customers and vendors agree up front which services and performance levels will be provided and how success or failure will be measured [Ref. 26]. Essentially, a SLA is a contractual commitment to meet specific service goals, along with the methods to monitor performance. Similar to performance measures in general, the advantages to using SLAs include giving both the customer and the vendor a baseline to measure performance, and enabling payments (via incentives and/or penalties) to be tied to

performance, service quality, and customer satisfaction. The disadvantages include difficulty in getting disparate user groups to agree on specific performance requirements and measures, the potential to pay for higher levels of service than are actually needed for some users, and a perceived lack of control. [Ref. 27]

A good seat management contract should include an adequate number of SLAs to help determine whether or not the contractor is meeting the goals and performance standards of the program. While a variety of measures can be used, basic ones should cover such items as vendor response time, system availability, and downtime [Ref. 10]. A survey conducted in August 2000 found that the top factors contributing to end user satisfaction were meeting availability requirements, having a stable or improving availability trend, meeting other performance requirements, and having short recovery times from unplanned outages [Ref. 28].

A SLA related to network availability would typically require that a specific percentage of network "uptime" be met. Other criteria could include network performance, network reliability (measured over time), mean time to report a failure, message delivery time, trouble tickets responded to, time to complete equipment moves, or even user training. [Ref. 27]

To be effective, SLAs should be developed with a focus on such areas as completeness, reporting functions, change management, and consistency [Ref. 29].

Completeness refers to outlining all of the functions that are monitored. However, a common mistake is specifying too many SLAs. Just because the Statement of Work (SOW) or Performance Work Statement (PWS) requires a specific service, does not necessarily require that a SLA be dedicated to it. The objective of the contract is to send the vendor a clear message about the requirements critical to the customer's success. This objective can be met by grouping the services into a relatively small number of SLAs and invoking incentives and/or penalties on those few measures that are truly critical to the customer's success. [Ref. 24]

Completeness can also refer to defining service level objectives, those specific aspects of each service level that will be monitored. Typically, service level objectives include such things as availability, performance, and accuracy. Availability can be

measured in units of time (such as hours) or as a percentage as noted previously. Performance can be measured in terms of volume of transactions accomplished or speed. Accuracy can be measured by whether or not the service accomplishes what was intended. [Ref. 30]

It is also important within each SLA to limit the required aspects to be monitored to only those that are truly critical. It has been noted that "the more comprehensive the SLA, the higher the cost of the service." [Ref. 31] Of course, the more aspects to the SLA (or the more SLAs overall), the higher the costs to the customer become for monitoring performance.

Reporting functions include reports that are used to judge performance, how frequently they are generated, and who will receive them [Ref. 29]. The two categories of reporting for SLAs are real time reporting and periodic reporting. The purpose of real time reporting is to allow clients to know the status (or "health") of the service. A simple confirmation that the service is functioning normally is usually sufficient. When problems occur, the customer should be promptly notified of the nature of the problem, its scope and impact, and the planned resolution. Periodic reporting (the type specified in most SLAs) refers to mostly historical metrics on actual service performance that can then be compared to the contract requirements. [Ref. 32]

Change management refers to the fact that large IT networks are dynamic entities. Applications, devices, and users are frequently added or subtracted. Hardware and software are frequently refreshed. The SLAs should outline how the impact of such changes will be accommodated in the performance requirements and performance measurement. Consistency refers to the fact that SLAs tend to be complex and lengthy, so they should be written to ensure that common terms (such as response time) are used in a consistent manner both within and across SLAs. [Ref. 29]

In addition to the basic SLA guidance above, the General Accounting Office (GAO) has identified some commercial best practices that should be considered by the Government when outsourcing large IT efforts. For example, SLAs should include measures that reflect end-user satisfaction as well as technical IT performance, which dovetails with the concept of including qualitative measures along with quantitative

measures that was discussed previously in this section. Another best practice is to ensure that the SLAs are designed so that the vendor is required to achieve escalating performance standards at agreed-upon intervals. It was also recommended that SLAs incorporate sufficient flexibility so that minimum acceptable levels of performance can be adjusted as conditions change, as the provider becomes more adept at satisfying customer needs, and as improvement goals are achieved. Similarly, GAO also recommended that SLAs be reviewed and updated periodically. These last two items could be included in the change management concept discussed previously. [Ref. 33]

Some additional recommendations from GAO include periodically undertaking studies to compare the vendor's performance metrics to similar efforts, conducting executive-level meetings with the vendor's senior management to review the vendor's performance, distributing the performance data to key stakeholders, reserving audit rights on performance data supplied by the vendor, and performing trend analysis. [Ref. 33]

In early 2002, GAO released a review of six agencies and their use of seat management contracts. In the area of performance measures, GAO reported several negative findings. For example, it was noted that seat management contracts "sometimes did not include contractor performance measures pertaining to all business goals" of the program. One agency was cited for having performance goals in its agency strategic plan to cut costs and improve productivity, while the seat management performance measures did not include metrics for cost reductions or productivity improvements. (The agency's seat management contract was part of the agency's plan to meet its strategic goals.) [Ref. 34]

Another agency's seat management contract was cited for having performance metrics that were "inadequate, incomplete, and/or [insufficient] incentive to the contractor." Other agencies' performance measures were described as "complex and cumbersome," and "not adequate to ensure acceptable service performance and adequate capacity for service growth." [Ref. 34]

It is clear that establishing the performance measures (in terms of SLAs) for a seat management contract (or any IT outsourcing effort) is a daunting task. This is probably the most critical challenge associated with seat management contracting.

D. INCENTIVES

1. The Issue

Another challenge inherent in performance based service contracting (including seat management contracts) is identifying and establishing effective incentives. Creating effective incentives is strongly related to performance management strategies and the use of effective performance measures as discussed in the preceding section. Incentives can stand alone or can be combined with penalties for a "carrot and stick" approach to motivating contractor performance.

When applying commercial best practices to IT outsourcing efforts, one common approach is the use of "total cost of ownership" or TCO. The TCO concept is a "method used to define and measure the total cost of acquiring and maintaining a desktop computing environment." [Ref. 35] A TCO computation would include the costs of hardware, software, support services, maintenance, etc. (essentially everything covered by a seat management arrangement), as well as indirect costs such as lost productivity due to downtime. Early seat management efforts tried to incentivize reductions in TCO. However, the role of IT investments (at least in the private sector) has become more strategic in nature and blindly incentivizing reductions in TCO could be at odds with overall business objectives [Ref. 35]. Of course, as noted in Chapter II, early seat management pioneers quickly realized that cost reductions were not a typical benefit of seat management contracting.

Another drawback to a TCO approach to incentivizing contractor performance is the fact that it is hard to tell if money is being saved without accurate numbers going into the contract [Ref. 36]. Ideally, TCO should be used as part of the decision to migrate to a seat management contract in the first place, as well as to justify further investments in the arrangement. The 1996 Clinger-Cohen Act, Office of Management and Budget (OMB) Circular A-130, and GAO IT investment management guidance all call for IT managers to study their investments in IT efforts. However, GAO's review of six agencies and their use of seat management contracts noted that all six did not sufficiently analyze their baseline and projected costs before implementing seat management [Ref. 34]. It is not feasible to base incentives on TCO reductions without accurate baseline data.

While it seems clear that TCO is generally not a good method to incentivize contractor performance on seat management contracts, the challenge remains to create meaningful incentives to motivate contractor performance, encourage innovation, and stimulate continuous improvement.

2. Addressing the Issue

The most common approaches to incentives in seat management efforts tie the incentives (and often penalties, as well) to the performance measures defined in the SLAs. A key goal in establishing meaningful incentives should be to coordinate them with the contract's SLAs to encourage the contractor to continually improve its systems, with incentives being earned if the required levels of service are surpassed [Ref. 20]. A typical approach is to establish monetary incentives (and penalties, if applicable) for each of the SLAs and apply those in a performance requirement summary (PRS) type of format. Table 1 is an illustration of a simplified PRS chart for a seat management contract.

A method for tracking the net result of applying monetary incentives and penalties is the use of "retainage pools" in which a set percentage (as defined in the contract) of the contractor's monthly payment is set aside (retained) by the Government and disbursed periodically after a review of contractor performance [Ref. 34]. For example, in NASA's ODIN contract, the agency uses both a "performance retainage pool" (three percent of the sum of monthly seat prices tied to successful implementation of the ODIN operating model) and a "metric performance retainage pool" (one percent of the sum of monthly seat prices tied to service delivery, availability, and customer satisfaction) [Ref. 37]. Another method would be to establish a maximum incentive amount available to the contractor (similar to an award fee provision) that is offset by any penalties assessed.

PERFORMANCE BASED CONTRACTING TEMPLATE - SEAT MANAGEMENT

Desired Outcomes	Required Service	Performance Standard	Monitoring Method	Incentives/ Disincentives
1) Users shall have access to all desktop computing functions, as needed.	Desktop systems/ networks shall be available to all users M-F, 6a.m.till10p.m.	99% availability, as described herein.	Inspect call logs for trouble calls.	+/- 1% of total monthly price. Performance=actual availability/ target availability
2) Sufficient numbers of staff members are available to resolve day-to-day issues.	The Contractor shall provide qualified employees to adequately staff the program.	Average staffing levels shall not fall below 90% on any task order.	Invoices, reports, and other records will be reviewed to determine staffing levels on a monthly basis.	+/- 0.5% of total task order price, for each variance +/-5% (reflects positive and negative incentive) from standard.
3) Moves, adds, and changes shall be accomplished as efficiently as possible.	Requests for moves, adds, and/or changes shall be completed within 5 workdays after receipt of request.	98% of requests are completed within 5 workdays.	Random sampling of request for service (i.e., RISS) logs, completed work tickets, and customer interviews.	+/- 1% of total monthly price for each +/-1% variance from standard.
4) Customer problems shall be resolved as quickly and efficiently as possible.	Requests for service shall be efficiently logged and tracked, and the customer shall be notified as to expected completion time.	98% of calls are resolved within same business day.	Trouble tracking system will be reviewed, noting how request arrived (e-mail, phone), time arrived, and completion.	+/- 1% of total monthly price for each variance of +/-1% variance from standard.
5) Maintenance response and repair times shall be met, as specified.	For L1 customers, system/network services shall be restored within 2 hours of receipt of notification; for L2 customers, service shall be restored within 4 hours.	98% of service equipment is restored to service within the stated times.	Trouble tracking system will be reviewed, noting time arrived, and date/time completed; random sampling of customers.	+/- 1% of total monthly price for each variance of +/-1% variance from standard.

Table 1. PRS Example. [From: http://knownet.hhs.gov/acquisition]

Incentives and performance measures should be implemented in a coordinated fashion to emphasize the goals that are important to the organization's (or agency's) mission. GAO has noted that recent reforms (including the Clinger-Cohen Act, the Government Performance and Results Act, and the Federal Acquisition Streamlining Act) have emphasized a "results-oriented approach toward IT." [Ref. 38]

Specifically, the Clinger-Cohen Act emphasizes a goal that IT projects contribute to "tangible, observable improvements in mission performance." Successfully acquiring and applying IT has been described as "central to improving Government operations and generating better service to the American people." [Ref. 38]

The GAO *Executive Guide to Improving Mission Performance Through Strategic Information Management and Technology* indicates that IT projects should be

implemented with an eye toward measurable benefits (to the organization) such as increased productivity, improved customer service, higher returns on IT investments, and lower risks of failure, delay, and overspending [Ref. 39]. Similarly, the GAO *Executive Guide to Maximizing the Success of Chief Information Officers* provides that the role of IT in creating value is based upon IT's impact on the overall strategic mission of the organization [Ref. 40].

Therefore, the incentives and performance measures should be implemented in a coordinated fashion to improve the ability of the organization to meet its overall strategic goals. Failure to consider the organization's "purpose in life" can bring failure in the private sector, while in the Government it can bring stinging criticism. For example, GAO criticized the U.S. Department of Agriculture (USDA) for wasting millions of dollars on poorly managed IT investments "without determining how to best deliver services to its customers." [Ref. 41]

There is some evidence that agencies are taking this advice to heart in considering seat management incentives. For example, a recent study of the NASA ODIN contract included the findings that: (1) innovation incentives are lacking; and (2) metrics are generally ineffective. Recommendations of the study included the creation of incentives that reward both innovation and exceptional performance in meeting metrics that track progress against strategic objectives [Ref. 42].

In designing the seat management incentives with the organization's overall mission in mind, it is important to consider the mission or goals of the organization at a macro level (i.e., an enterprise-wide view). It would be detrimental to focus only on the goals of one segment of the organization as the new IT strategy might improve functioning in one area to the detriment of other areas. A recent GAO report criticized the Defense Logistics Agency (DLA) for implementing an IT solution focused on only one of its six business areas. Specifically, GAO commented that DLA's plans would increase "the risk that DLA will modernize in a way that optimizes an individual business area but does not optimize agencywide…performance and accountability." [Ref. 43]

In addition to basic performance incentives (tied to the SLAs) and consideration of the strategic goals of the organization, another key consideration in designing seat

management incentives is customer satisfaction. Customer feelings and attitudes are critical to the success of any program, although they are particularly important in a seat management effort due to the radical nature of the transition to buying IT capabilities like a utility service. In fact, GAO has identified pursuing "improvement based on customer satisfaction surveys" as a commercial best practice for IT outsourcing [Ref. 33].

To gauge customer service, "self reporting" (by the customers) is the most common, least expensive, and most objective method. Customer satisfaction surveys are common in many industries and customer attitudes are typically measured using a variety of numerical scales. Responses can then be counted, frequency of satisfaction measured, and various percentages derived. When tying seat management incentives to customer service, however, there are two risks to using only numerical scales. First, assigning a number to an adjectival rating can be problematic since the meaning of "very satisfied," for instance, can vary from individual to individual. While it is possible to say what percentage of customers chose that answer on a survey, it does not provide a significant level of understanding. Therefore, qualitative measures should be used to supplement quantitative analysis of customer satisfaction. The second risk with customer satisfaction surveys is that they may not ask the right questions. Focus groups or other methods can assess what customers really want from the program. [Ref. 20]

In addition to creating incentives that are tied to the performance measures (SLAs), to the overall strategic goals of the organization, and to customer service, they can also be designed in relation to other things. For example, incentives can be tied to the transition period. Implementing seat management is often a complex undertaking that can meet with cultural resistance and other barriers. In early 2002, GAO released a review of six agencies and their use of seat management contracts. One recommendation was that agencies consider incentives related to the transition period. In GAO's review, officials from one agency that did not include transition incentives was quoted as stating that they wished that they had [Ref. 34]. As another example, Government contracts often apply incentives to socio-economic issues (such as small and small disadvantaged business subcontracting).

In a "carrot and stick" approach, penalties are the reverse of incentives. As noted previously, seat management contracts often include both. Similar to incentives, there are some key considerations in creating effective penalty provisions. GAO has identified several commercial best practices for designing penalties in IT outsourcing efforts. For example, penalties can be assessed for failure to meet individual SLAs as well as aggregate performance requirements, penalties can be in the form of credits to the customer, penalties can increase for recurring poor performance, penalties can be refunded if agreed-upon performance levels are restored quickly, and penalties can be designed to withhold contractor profit, but not cost [Ref. 33].

Creating meaningful incentives (in a coordinated fashion with effective performance measures) is a key challenge of seat management contracting. As with other types of contracting, properly structured incentives (and penalties if applicable) can be quite valuable in encouraging contractor efforts to meet and exceed expectations.

E. PREPARING FOR THE TRANSITION TO SEAT MANAGEMENT

1. The Issue

A challenge inherent in large IT outsourcing efforts (including seat management contracts) is preparing for, and facilitating, the actual transition to the new way of acquiring the services. There are two basic areas that must be addressed in transition planning. The first is the transition of the actual IT assets and services themselves (i.e., the "IT environment"), and the second is the transition of any displaced human capital as a result of the outsourcing.

The launching of a seat management approach to IT involves a complex transition that requires, among other things, management of "distributed assets" (including those outside the immediate organization) and might also influence local or regional information centers [Ref. 44]. Seat management usually involves turning over ownership of the existing IT assets to the new vendor. In addition to the existing desktop computers, these assets may include support assets such as servers, routers, and even cabling.

In the military environment, this can affect not only one office's computer equipment but also the servers, routers, etc., that may be located elsewhere on the

military base or compound. Sometimes this is further complicated when an office of one service (e.g., an Army activity) is sitting on another service's installation (e.g., a Navy Base) and the transitioning activity had been sharing the other service's local IT infrastructure. Further complicating this transition of IT resources is the fact that often some equipment is being leased and is not owned by the transitioning activity. In this case, the lease expiration must be coordinated with the seat management contractor's responsibility to install new equipment. In addition to hardware, software is also a concern and existing software licenses must be located, documented, and transferred.

Of course, the current IT environment includes more than just the hardware and software. It is possible that certain services (such as equipment maintenance and/or help desk support) may be provided under existing contracts or may have been previously outsourced as a result of an OMB Circular A-76 study. The transition planning must consider how all of these aspects (infrastructure, hardware, software, support services, etc.) will be converted to the new seat management endeavor.

In addition to the transition of the IT environment, there is also the transition of excess human capital to consider. As noted previously, one of the advantages of outsourcing the desktop IT resources is that employees who had previously dealt with the day-to-day support of those resources can be freed up for other more business-sensitive tasks. In many cases, though, there will be excess employees that are no longer required by the organization after the seat management approach is implemented. In the private sector, organizations may have to plan for layoffs with such considerations as severance packages, retraining, or placement assistance. The Government has its own processes for eliminating unnecessary positions.

Whether it is through formal transition planning or less formal means, it is important that the issues related to the transition from current support to the new seat management approach be identified, analyzed, and planned for. Otherwise, a smooth transition will be nearly impossible.

2. Addressing the Issue

GAO has recognized the need for effective planning in order to manage the transition to seat management. In GAO's review of six agencies and their use of seat

management contracts, they identified "the transition period between awarding the contract and reaching a 'steady state'" as one of the most important areas of post-award planning. In their review, GAO identified dealing with the existing infrastructure as a key issue during the transition period. In fact, two of the agencies reviewed indicated that they should have allowed more time for the transition period. The seat management contractor for one of the agencies cited ill-defined transition requirements that did not adequately plan for parallel operations with an incumbent contractor. [Ref. 34]

GAO has also identified several commercial best practices for transition planning in IT outsourcing efforts. In addition to communicating a clear transition process to all key players from the customer and contractor organizations, they also recommend such practices as communicating what will happen (and when) to employees, establishing (customer) transition teams with representatives from across the organization, documenting key information to preserve organizational knowledge in the event the service provider changes, and using change management strategies. [Ref. 33]

With regard to seat management contracts specifically, some organizations have utilized an entity relationship agreement, or "ERA," to address issues associated with the migration from existing sources of operational support (such as leased PCs or contracted help desk support) to the new seat management contractor [Ref. 44]. Such agreements should address - in a site-specific fashion if multiple sites are involved - such items as roles and responsibilities of each party (Government and contractor) for the transition, pre- and post- transition activities, change management communication, software licenses, shared resources, security, facilities, and legacy system connectivity. The use of such an agreement will let the customer maintain accountability for asset management and service delivery [Ref. 44].

The use of contractor transition managers or transition teams (where contractor personnel oversee the transition at the customer site) to smooth implementation efforts and deal with unforeseen challenges are another common commercial practice in transitioning to the seat management environment.

In addition to the transition of services, there is also the issue of transition of excess human capital. As noted previously, one of the advantages of outsourcing the

desktop IT resources is that employees who had previously dealt with the day-to-day support of those resources can be freed up for other more business-sensitive tasks. In many cases, though, there will be excess employees that will no longer be required by the organization after the seat management approach is implemented. In the private sector, organizations may have to plan for layoffs of excess employees. The Government has its own processes for eliminating positions, such as reductions-in-force (RIFs) or OMB Circular A-76 studies, which can be cumbersome, complex, and time-consuming.

One method of easing the transition of displaced Government employees has been to include a "right of first refusal" clause in the new contract. A typical clause requires the contractor to give Government employees who have been (or will be) "adversely affected" by the contract the right of first refusal for employment with the contractor for positions the employees are qualified for (subject to post-Government employment restrictions) [Ref. 45]. Such clauses can be tailored to require the contractor to provide retraining where necessary.

GAO has identified several commercial best practices for planning for the transition of excess staff in IT outsourcing efforts. For example, their recommendations include encouraging transfer of staff to the contractor through the use of bonuses or other incentives, developing employee retention programs to keep key people, assisting employees who do not wish to transfer to the contractor in finding other jobs (within the organization or elsewhere), and using change management strategies [Ref. 33].

Whatever methods are used, it is important to consider the organization's people in a transition to seat management. Change management procedures, especially communication, will go a long way toward reducing the anxiety and uncertainty during such a transition.

It is clear that preparing for the transition to seat management is a complex task. In a military environment, transition problems can cause unacceptable risks as IT has become critical to supporting the warfighters. However, effort spent up-front on thorough transition planning is likely to pay off in a smoother and more effective transition.

F. MANAGING CULTURE CHANGE

1. The Issue

A significant challenge to implementing a seat management contracting approach is managing the organizational culture change that is required to successfully deploy this new method of obtaining desktop computing power. "Culture" refers to "norms of behavior and shared values" among the members of an organization. "Shared values" are the "important concerns and goals held by most people in the group" that, in turn, shape the norms of behavior within the organization. [Ref. 46]

Dealing with the required culture change is one of the most pervasive - and yet most difficult - challenges of seat management contracting, particularly in large organizations. This method of IT contracting represents a significant change to the way desktop computing capability is acquired and managed. Accordingly, some basic change management strategies are important to build understanding and commitment to the new approach. The short-term goal of managing the necessary culture change is to build ownership of - and dedication to - the seat management approach, while the long-term goal is to successfully implement the new concept.

There are two general "culture-change scenarios." The first is where the "core of the old culture is incompatible with the new vision" and is very difficult to manage. The second scenario - most common in seat management implementations - is where the "core of the old culture is not incompatible with the new vision." This is an easier situation to manage and is described as one involving "grafting new practices onto old roots." [Ref. 46]

The second scenario is a good metaphor for a seat management implementation. Seat management dramatically changes the way in which the organization obtains and manages its desktop computing power - but usually does not fundamentally change what the organization does with that power (although seat management may allow for more collaboration capabilities than were previously available).

Organizational culture, of course, cannot be directly manipulated and true culture change "comes at the end of a transformation" as opposed to the beginning [Ref. 46]. However, it is important to take actions from the earliest point in planning for, and

implementing, seat management in order to promote the necessary culture change. The key elements to effectively managing culture change in this context would include leadership, communication of organizational goals and vision, and surfacing (and addressing) resistance to the change to seat management.

Effective communication with affected parties (e.g., stakeholders, program implementers, users, displaced employees, etc.) is the single most important tool to manage the necessary culture change. Addressing the culture change issue in a seat management implementation has several aspects.

2. Addressing the Issue

A key task in managing the required culture change is to ensure that all of the stakeholders are educated upfront that seat management is a performance-based service similar to a utility [Ref. 16]. It takes a different mindset to accept that everything, including ownership of the resources, has been turned over to the vendor and that the organization no longer owns, buys, or controls hardware, software, maintenance or other things as in the past. This often leads to a fear of the loss of control by turning everything over to a contractor [Ref. 1]. Other stakeholder concerns are that seat management contracts can be limiting and lack flexibility [Ref. 47]. These concerns must be surfaced and addressed in order for the necessary culture change to take place.

Another source of resistance to the change to seat management is the "sticker shock" when an organization realizes the true costs of PC ownership [Ref. 17]. For example, without proper education, it is hard for the leaders or comptroller of an organization to initially endorse a "seat price" of $3,500 - or more - per year to get (in their perception) a desktop computer that can be bought at the local office supply store for a one-time outlay of $2,000.

As noted by one seat management contractor, "this is a very difficult concept to sell. You have to prove the total cost of ownership." [Ref. 16] Another contractor similarly stated that "many agencies don't have an accurate idea of the total cost of running and maintaining their PC networks…if government managers aren't ready to accept the true value of these costs, then they will have trouble adopting the PC outsourcing concept." [Ref. 16]

Stakeholders need to be educated regarding the nature of a seat management contract and regarding the cost aspects. This relates to the TCO concept discussed in an earlier section of this thesis where TCO was defined as a "method used to define and measure the total cost of acquiring and maintaining a desktop computing environment." [Ref. 35] A TCO computation includes the direct costs of hardware, software, support services, maintenance, etc., and indirect costs such as lost productivity due to downtime. However, determining the true total cost of ownership in a seat management environment is difficult because "everybody defines it differently." [Ref. 8]

Of course, TCO has been a difficult issue for the Government. GAO's review of six agencies and their use of seat management contracts noted that all six did not sufficiently analyze their baseline and projected costs before implementing seat management. [Ref. 34] Without accurate baseline data, it becomes even more challenging to deal with the resistance engendered by seat management "sticker shock." However, this issue must be addressed to affect the necessary culture change.

Communication is the key to effective change management and overcoming the resistance that is surfaced, and this communication must come from the highest levels of the organization. Senior leadership must define the changes taking place, articulate the new vision, and the reasons for the change to seat management. Of course, the organization's top leaders themselves must be committed to the implementation of seat management. In GAO's review of six agencies and their use of seat management contracts, they identified "obtaining agency commitment, especially by top management" as one of the primary lessons learned [Ref. 34].

In fact, GAO stated that their "wide-ranging work on federal management issues" has demonstrated that "perhaps the single most important element of successful management improvement initiatives is the demonstrated commitment of top leaders to change." GAO's research also showed that "executive leadership is a critical success factor for outsourcing IT services in the commercial world." [Ref. 34]

All stakeholders must come to fully understand the new vision and the benefits derived from the seat management contract. Resistance to the change can be minimized and the necessary culture change promoted only if the message from the senior leadership

is consistent and strongly emphasizes the benefits derived from the seat management approach. Stakeholders need to believe that the long-term benefits to the organization will be worth their short-term pain in making the transition.

In their analysis of leading commercial best practices for outsourcing of IT services, GAO recommended that the leadership clearly communicate to all employees what is going to happen (and when), continue to communicate changes as they occur, handle resistance to change with meetings between senior managers and employees, shift corporate attention from non-core functions (such as IT support) to core business functions, and use change management strategies to help employees deal with the changes [Ref. 33]. Similarly, in their report issued as a result of their review of six agencies and their use of seat management contracts, GAO recommended that the necessary culture change can be assisted by such change management communication processes as keeping the entire organization informed throughout the initiative, conducting "regular peer to peer meetings" at each level in the organization, and securing key executive support [Ref. 34].

As part of the communication processes to promote the necessary culture change, contract specific education and training will also be needed. It is important that all stakeholders (e.g., managers, end-users, vendor oversight personnel, etc.) be kept appraised of progress on the move to seat management as well as their roles and responsibilities in the transition as well as during contract performance. Such education and training should cover such topics as the seat management services; performance measures; oversight organization, responsibilities, and communications; funding issues; incentives and penalties; invoicing and payment; etc. Once all of the stakeholders are fully educated on the new approach, the details of how it will work, and their roles in carrying it out, resistance to the change emanating from such fears as a loss of control can be mitigated.

Managing culture change is a difficult and complex task. However, effective communications and basic change management strategies can go a long way towards diffusing resistance to the implementation of a seat management approach and promoting

shared values among the members of the organization that are rooted in the benefits to be derived from the new approach to acquiring desktop computing power.

G. CHAPTER SUMMARY

This chapter provided a detailed examination of the significant challenges and concerns associated with the seat management method of contracting for desktop IT capabilities. These challenges involve benchmarking technical performance requirements, establishing performance measures, creating effective incentives, preparing for the transition to seat management, and managing the required culture change. By effectively addressing these challenges when structuring the requirements and the contract, commercial expertise and best practices can be leveraged to increase the likelihood of achieving such potential benefits of seat management as better response time, more reliable system availability, and reduced network downtime.

The next chapter, Chapter IV, provides a detailed analysis of the NMCI program's approach to addressing the challenges associated with seat management that were explored in Chapter III. By evaluating how well the NMCI program is responding to these challenges, recommendations can be provided as to where improvements can be made in order to increase the likelihood that NMCI will achieve its expected benefits.

IV. NMCI PROGRAM'S APPROACH TO THE CHALLENGES

A. INTRODUCTION

This chapter describes and analyzes the NMCI program's approach to addressing the challenges associated with the seat management method of IT contracting that were identified and explored in Chapter III. Significant challenges that must be addressed involve: benchmarking technical requirements, establishing performance measures, creating effective incentives, preparing for the transition to seat management, and managing the required culture change.

By effectively addressing these challenges when structuring the requirements and the contract, it is more likely that commercial expertise and best practices can be leveraged to result in the potential benefits associated with seat management (e.g., better response time, more reliable system availability, reduced downtime, etc.).

This chapter examines how NMCI is dealing with the seat management challenges that were explored previously in this thesis. By evaluating how well the NMCI program is responding to these challenges, recommendations can be provided as to where improvements can be made in order to increase the likelihood that NMCI will achieve its expected benefits.

B. BENCHMARKING TECHNICAL REQUIREMENTS

As discussed in Chapter III, it is a daunting challenge to define the technical requirements of a seat management contract (or any IT contract) in an environment of rapid technological changes. It is not practical to set forth absolute technical standards in a contract that will last many years. The rapid technological advances in the marketplace make such standards quickly outdated. As noted in Chapter III, benchmarking is a common alternative to specifying firm technical requirements.

A benchmark is defined as a minimum industry-based standard that must be met and serves to take into account changes in technology. Setting benchmarks for the technical requirements not only accommodates technology advances, but also allows for monitoring contractor compliance with requirements to keep up with those advances.

The NMCI contract, as noted in Chapter II, is a multi-year contract with a five-year base period and a three-year option period (therefore, potentially lasting eight years if the option period is exercised). In order to deal with the challenge of defining the technical requirements of the contract in an environment of continual change, the NMCI contract references the generic benchmark known as "state-of-the-shelf."

As defined in Chapter III, this term refers to the best technology that is currently (and sufficiently) available in the marketplace. Using a state-of-the-shelf benchmark recognizes a commercial best practice balancing of technology, usability, stability, and value.

The NMCI contract specifies four different types of basic "fixed workstation seats" (i.e., networked desktop PCs) denoted as "red," "white," "blue," and "thin-client" seats [Ref. 6]. As noted in Chapter II, the NMCI program offers other "access devices," although the fixed workstations are the largest component of the program (and qualify NMCI as a seat management contract). The technical requirements of the fixed workstation seats are defined in the contract based upon the "state-of-the-shelf" benchmark.

The contractually specified technical requirement for a "red" seat (the highest priced basic workstation) demands "performance equal to or greater than 75 percent of the performance of the high-end commercially available state-of-the-shelf workstation at the time it is deployed and refreshed." The requirements for "white" and "blue" seats are 65 percent and 60 percent, respectively, of the same performance benchmark. The requirement for "thin client" seats (used mainly as simple data input stations for shared server-based applications) calls for 50 percent of the same benchmark. [Ref. 6]

NMCI offers a "high-end seat upgrade" package as an optional item on the "red" seats. According to the contract, this upgrade "adds enhanced performance (i.e., high bandwidth and CPU-intensive processing) beyond the requirements of a base seat." For a (rather substantial) price premium, the contractually specified technical requirement increases to "performance equal to greater than 90 percent of the performance of the high-end commercially available state-of-the-shelf workstation." [Ref. 6]

While "state-of-the-shelf" is a reasonably well defined and industry recognized benchmark (i.e., the best technology that is currently - and sufficiently - available in the commercial marketplace), the addition of the "high end" language appears somewhat redundant as "state-of-the-shelf" already refers to the "best technology" sufficiently available in the marketplace at the time of deployment (or periodic refreshment) which would logically imply a "high end" workstation.

Nonetheless, by basing the technical requirements of the contract on such a benchmark, the technical standards for the various types of seats are not fixed in the contract, but rather are tied to what is available in the marketplace at the time a seat is installed or subject to technology refreshment. Not only does the use of such benchmarks allow the contract requirements to keep up with technology changes and market realities, they also allow the contractor's performance to be measured against standards that do not become obsolete during the life of the contract.

While the use of the "state-of-the-shelf" benchmark in the NMCI contract is reasonably simple and consistent, it is not necessarily well understood by all parties. Although the contractor, the Contracting Officer, and the Government program managers (presumably) understand what is required by the benchmark, the myriad of NMCI users within the Navy and Marine Corps may not have the same level of understanding. When end-users are preparing NMCI order requests for their activities, it is vital that all potential users (i.e., customers of NMCI) have a clear understanding of what the various seats entail so that orders can be placed that adequately meet the end users' true requirements (while still representing the minimum Government needs).

To deal with this situation, the NMCI contractor posts to its website a current description of the technical specifications for each type of seat. These specifications are Government approved and represent - at any given time - the exact type of hardware that is provided for each type of seat available under the contract.

For example, in January 2003, the hardware provided for a "red" seat consisted of a Pentium IV 2.4 Gigahertz processor with 533 Megahertz front side bus, 256 Megabyte random access memory, and a 40 Gigabyte disk drive. A "white" seat was based on a Pentium IV 2.0 Gigahertz processor with 400 Megahertz front side bus, 128 Megabyte

random access memory, and a 20 Gigabyte disk drive. A "blue" seat was based on the contractor furnishing a 1.8 Gigahertz Celeron processor with 400 Megahertz front side bus, 128 Megabyte random access memory, and a 20 Gigabyte disk drive. There were similar exact specifications for "thin client" seats and for the "high-end upgrade package." [Ref. 48]

By providing a method (via the contractor's website) that NMCI users can use to examine and consider the exact specifications for the hardware at any given time, the NMCI program ensures that the generic benchmarking of the technical requirements in the contract itself does not preclude any potentially interested parties from clearly understanding what would actually be provided to end users under the benchmarked requirements. The exact seat specifications maintained on the contractor's website can be updated periodically as technology advances and the equipment provided evolves to keep up with the generic benchmark requirements in the contract.

As awarded, the NMCI contract does not address specifically how the Government evaluates or approves the contractor's proposed specifications for the hardware to be provided at any given time (i.e., in terms of whether or not the exact specifications would meet the generic benchmarks in the contract). However, under the service level agreements (SLAs), the SLA for "technology refreshment" indicates that through "continuous monitoring," the relative performance of NMCI workstations is evaluated based upon "objective test results using test scenarios mutually agreed to by the Government and the contractor." [Ref. 6]

Modification P00051 to the contract updated the SLAs. As a result, the SLA for technology refreshment now indicates that relative performance of NMCI workstations is evaluated based upon a "percentage of the high-end state-of-the-shelf workstation score as posted to the SYSmark results page" maintained by Business Applications Performance Corporation (BAPCo). The new requirements indicate that the contractor submits to the Contracting Officer, on a quarterly basis, the "SYSmark test reports and their corresponding proposed NMCI seat configurations." [Ref. 49]

SYSmark is a "performance benchmark suite" developed by BAPCo as a "tool for evaluation of personal computer performance in business environments." The SYSmark

tool uses industry based usage characteristics to evaluate PC performance based on response time as the "fundamental unit of performance." [Ref. 50]

By using an independent, industry recognized evaluation tool, the Government ensures that the exact specifications set forth periodically by the vendor for the various types of NMCI seats meet or exceed the generic benchmark used in the contract to define the technical requirements.

As noted in this section, the NMCI program employs benchmarking to define the contract's technical requirements in an environment of continual change. The approach (including quarterly updates of the exact product specifications to be delivered against the generic benchmark and public posting of those specifications) ensures that the simple and consistent benchmark is effectively understood by all interested parties.

Unfortunately, however, the NMCI program does not have a plan to periodically revisit the benchmarks themselves to determine whether or not they should be updated to remain relevant to changing user needs [Ref. 51]. As user needs evolve over time (and in response to technological advancements in the marketplace), it is unclear if performance equal to 65% (for example) "of the performance of the high-end commercially available state-of-the-shelf workstation" will be as effective or appropriate in meeting end user needs as it was at the time the benchmark was established.

C. EFFECTIVE PERFORMANCE MEASURES

As outlined in Chapter III, "performance management" is a term used to encompass the tasks of defining the minimum acceptable performance standards for a contract and establishing a performance monitoring approach to determine whether or not the required performance standards are met. At its most basic level, performance management is the process of monitoring vendor performance against the contractual requirements.

As noted previously, many IT contracts (including seat management arrangements) include performance measures rooted in the tactical (vice strategic) performance management concept of service levels. Such service level performance management is usually defined and managed through the use of "service level

agreements" or SLAs. A SLA is a contractual commitment to meet specific service goals, along with the methods to monitor performance.

The NMCI contract relies upon SLAs to establish the performance-based service goals that the contractor must meet when delivering services. As awarded, the contract included forty-four separate SLAs [Ref. 6]. Modification P00051 to the contract updated and replaced the SLAs. While there are still forty-four separate SLAs, they were revised to "clarify the SLA processes and levels of measurement." [Ref. 49]

NMCI includes SLAs geared toward broad areas categorized as user upgrades, end-user services, maintenance and help desk services, communication services, system services, information assurance services, and "other" requirements. Table 2 lists the various SLAs contained within the NMCI contract (as modified).

Each SLA contains various "sub-measures," ranging in quantity from one to eleven per SLA (although most SLAs have four or more). These sub-measures are essentially the "service level objectives," or specific areas within each SLA that are measured. For example, the SLA for email services has five separate sub-measures covering availability of the service (with a standard of 99.5% to 99.7%), problem resolution (with a standard of 30 minutes to one hour), performance of email transfer (with a standard of <5 minutes), interoperability (with a standard requiring notification of failure within three hours), and customer satisfaction (with a standard of at least 85% satisfactory ratings).

NMCI Service Level Agreement Categories

User Upgrades:	**Maintenance and Help Desk Services:**
Desktop H/W and Operating System	Basic Help Desk Services
End User Services:	**Communications Services:**
Standard Office Automation Software	Wide Area Network Connectivity
E-mail Services	BAN/LAN Communications Services
Directory Services	Moveable Video Teleconferencing Seat
File Shared Services	Proxy and Caching Services
Web Access Services	External Networks
Newsgroup Services	**Systems Services:**
Print Services	Network Management System Services
NMCI Intranet Performance	Operational Support Services
NIPRNET Access	Capacity Planning
Internet Access	Domain Name Server
Mainframe Access	Application Server Connectivity
Desktop Access to Government Apps	Network Operations Display
Moves, Adds, and Changes	**Information Assurance Services:**
Software Distribution and Upgrades	Security Operational Services General
User Training	Security Operational Services PKI
Unclassified Remote Access	Security Operational Services SIPRNET
Classified Remote Access	Security Planning Services
Portable Workstation Wireless Dial-in	**Other Requirements:**
Organizational Messaging Services	Integrated Configuration Management
Desktop VTC (hardware & software)	Integration and Testing
Voice Communications	Technology Refreshment
Voice Mail	Technology Insertion
	Sea-Shore Rotation Support Training

Table 2. NMCI SLA Categories. [Ref. 49]

As another example, the SLA for directory services has seven separate sub-measures covering availability of the service (with a standard of 99.5% to 99.7%), network responsiveness (with a standard of <2 seconds to search the directory), dial-in responsiveness (with a standard of <20 seconds), timeliness of directory updates (with a standard of within four hours at least 99.9% of the time), accuracy of the directory (with a standard of 99.9%), interoperability (with a standard requiring notification of failure within three to six hours), and customer satisfaction (with a standard of at least 85% satisfactory ratings).

Considering the forty-four separate SLAs and the numerous sub-measures, there are fully 201 individual performance aspects that are measured. To further complicate matters, each of these 201 performance aspects has three separate standards depending upon required "levels of service," which are defined by the options that may have been ordered with a given seat. Specifically, each performance aspect has one standard for a "basic" seat (i.e., without any ordered options), another standard for a "high-end" seat (i.e., ordered with the high-end upgrade package), and a third standard for a "mission critical" seat (i.e., ordered with the mission critical upgrade package). In some cases, however, an individual performance aspect will have the same standard for each of the three levels of service.

Considering the 201 individual performance aspects and the three different standards for each, there are over 600 specific performance metrics that are monitored and reported. However, there are common sub-measures that appear frequently throughout the SLAs. For instance, customer satisfaction is one of the sub-measures under the vast majority of the forty-four SLAs. Other sub-measures that cross many of the SLAs (where appropriate) include availability, responsiveness, and interoperability. Of course, availability - for example - means different things depending upon which SLA it is applied to.

The NMCI Execution Plan supplements the SLA information contained in the contract. The Execution Plan indicates that SLA compliance is jointly monitored by the contractor and the Navy on a monthly basis. The Execution Plan, as written, provides that the contractor and the Government work together to "establish measurement

methodology" for those SLAs where the contract (as awarded) was unclear [Ref. 52]. This was accomplished when modification P00051 was issued (although the modification was not issued until more than two years after the contract was executed).

As modified, the contract spells out the measurement method and reporting frequency for each of the 201 individual sub-measures of performance. For example, the SLA for web access services provides that the performance aspect of availability is measured continuously at the web server as a percentage of time available, with daily summarization and monthly reporting (subject to Government or designated third party audit). The performance aspect of web access performance is measured using automated network scripts placed on end-user workstations, with the script run three times daily for one hour each with measurements taken every five minutes and averaged during the hour (with monthly reporting).

As established in the contract, the SLAs cover the common performance measurement areas (as discussed in Chapter III) of vendor responsiveness, system availability, and (at least indirectly) system downtime. In addition to technical performance areas, the SLAs also address end-user satisfaction (which was a GAO recommendation). By including sub-measures of customer satisfaction, the quantitative technical performance data can be supplemented with qualitative information.

Upon review, the SLAs are defined in specific terms (to prevent ambiguities or multiple interpretations), appear to be sufficiently standard (to allow for potential comparisons to different vendors on other efforts), and reserve Government or third party audit rights where appropriate. The SLAs also spell out the reporting requirements and responsibilities of the parties. In addition, the SLAs appear to exhibit consistency in that common terms (such as customer satisfaction) are used consistently within - and across - the various SLAs.

As modified, the SLAs certainly cover all desired areas of performance and exhibit a high level of "completeness" which was explained in Chapter III to encompass covering all functions that are monitored (the forty-four SLAs) and all specific aspects of each service level that are measured (the 201 individual performance aspects or service level objectives).

Of course, as noted previously in this thesis, a common mistake is specifying too many SLAs. Just because the PWS requires a specific service, it does not necessarily mean that a SLA must be dedicated to it. The objective of the contract should be to send the vendor a clear message about those requirements that are most important to the customer's success. It is recommended that the SLAs (and sub-measures within them) be limited to only those that are truly critical. It has been noted that as the SLAs become more comprehensive, the service costs (and customer costs to monitor performance) increase.

It would appear that forty-four separate SLAs, containing 201 specific performance aspects (or sub-measures), with more than 600 individual performance metrics to be monitored and reported (considering the three levels of service), is extreme. While such an extensive, enterprise-wide program as NMCI should be expected to have numerous performance measures, a tradeoff is necessary. Such an extensive number of performance measures require a great deal of resources (both from the contractor and from the Government) to monitor the contractor's compliance. While it is important to use an adequate number of measures to monitor the important areas of performance, it is also important to restrict the number of measures to only those that are truly critical to the mission of the organization. It appears that the extensive number of performance measures on the NMCI contract could be streamlined.

The NMCI Execution Plan notes that there are two main "strategic performance goals" for the NMCI contract. The primary goal is information superiority, which is defined as providing our forces with "the capability to collect, process, and disseminate an uninterrupted flow of information while exploiting or denying an adversary's ability to do the same." The Plan explains that in order to promote information superiority, there "needs to be connectivity between all parts of the shore establishment, and with all deployed forces at sea and ashore." [Ref. 52]

The second "high level goal" is to foster innovation. The Plan explains that by providing interoperability and a "high level of common services" within the Navy, NMCI "create[s] an environment that supports innovative ways of integrating doctrine and

tactics," while "leading activities into new operational capabilities and more productive ways of using resources." [Ref. 52]

The Plan indicates that in order to determine the Navy's progress toward these key strategic goals, performance measurements under the contract are focused on interoperability, information assurance, service efficiency, customer satisfaction, work force capabilities, process improvement, and operational performance.

Upon review, a key opportunity for improvement in administration of the NMCI contract is to streamline the SLAs. There should be an effort to reduce the forty-four SLAs to only those that are truly critical to the two strategic goals of information superiority (emphasizing connectivity) and fostering innovation (emphasizing interoperability). In addition, an effort should be made to reduce the redundancy in the current number of sub-measures. For example, customer satisfaction can be combined into one SLA vice the current format where customer satisfaction is a sub-measure appearing dozens of times across the various SLAs.

By streamlining the SLAs so that they cover only those performance areas truly critical for the program's success, efficiencies may be gained and a clear message sent to the contractor as to the performance areas that are vital for the Navy's success.

With regard to revising the SLAs, the Execution Plan provides a process whereby Customer Technical Representatives (CTRs) - who are Government employees that assist the Contracting Officer's Representatives (CORs) at the claimant level - can identify cases where the existing SLAs do not cover services that "enable their NMCI end users to be effective" and recommend changes to be accomplished by contract modification [Ref. 52]. The Plan provides that the contractor and Government jointly assess the impact and cost of modifying the SLAs.

Unfortunately, however, the NMCI program does not have a plan to periodically (and automatically) revisit the SLAs to determine whether they should be updated to remain relevant; nor does the performance measurement system provide for escalating performance standards at periodic intervals; and there is no plan in place at present to compare the contractor's performance over time (as measured by the SLAs) to other contractors' performance on similar seat management efforts [Ref. 51].

Notwithstanding these opportunities for potential improvement, the Execution Plan does provide for trend analysis of the contractor's performance in meeting the SLAs. Further, the NMCI contract and the Execution Plan both indicate that the contractor will not be held responsible for missing the SLAs when actions of the Government or a third party are the cause, and the NMCI contract ties incentives and penalties to the contractor's performance as measured by the SLAs. The incentive approach is discussed in the next section.

D. INCENTIVES

As described in Chapter III, a key challenge inherent in performance based service contracting (including seat management contracts) is identifying and establishing effective incentives. Creating effective incentives is strongly related to the selected performance management strategies and the use of effective performance measures. As noted previously, incentives can stand alone or can be combined with penalties for a "carrot and stick" approach to motivating contractor performance. A common approach to incentives in seat management efforts is to relate the incentives (and often penalties, as well) to the performance measures defined in the SLAs.

The NMCI contract contains several incentive provisions and also provides a penalty process. There are five discreet financial incentives available to the contractor, of which one is explicitly contingent upon the contractor meeting the contract SLAs. The penalty process is directly related to contractor performance as measured by the SLAs.

While not specifically described as one of the five contract incentives, the NMCI contract does contain a unique payment provision that certainly acts as an incentive. The contract provides that the contractor will only receive payments totaling 85% of the contractual seat prices during the transition period until such time as the contractual SLAs are met. Once the contractor meets (or exceeds) the SLAs, they are then entitled to payments equal to 100% of the contractual seat prices.

The first of the five explicit incentives in the NMCI contract is a one-time incentive payment of $10 million when the contractor successfully achieves full operational capability (FOC). The definition of FOC is "steady state contract guaranteed

number of users having the ability to receive ordered services." [Ref. 6] The ability to receive ordered services, of course, does not necessarily require full SLA compliance. It is possible for users to successfully access NMCI services without the contractor meeting the availability or customer satisfaction measures within the SLAs.

The second NMCI incentive is related to customer satisfaction. Per the terms of the contract, the customer satisfaction incentive applies only if the contractor meets the SLAs. This incentive is also related to the SLAs as most of the forty-four separate SLAs have a specific sub-measure related to customer satisfaction. The stated purpose of the customer satisfaction incentive is to incentivize "service provider responsiveness to user needs." [Ref. 6]

The contract provides that customer satisfaction is determined by quarterly surveys of users. The Execution Plan provides that the Government and the contractor work together to develop a mutually agreeable customer satisfaction survey. The Execution Plan indicates that the survey "will be considered a continually evolving document with established periods of refreshment." [Ref. 52] This recognizes that, over time, user requirements and goals are likely to change as technology improves and missions evolve.

Assuming that the SLAs are met, the customer satisfaction incentive is $25 per seat, per quarter, if more than 85% of users rate NMCI services as "above average" on the satisfaction survey. The incentive is $50 per seat, per quarter, if more than 90% of users rate the services as "above average" on the survey, and $100 per seat, per quarter, if more than 95% of users rate the services as "above average."

The third incentive in the NMCI contract is related to information assurance (IA). The stated purpose of the IA incentive is to "focus continued high level attention" on IA as the "actions necessary to assure security of information will change as new attack methods are developed or network weaknesses discovered." The contract provides that the Government will perform "unannounced information warfare" on the contractor's network with the incentive to be determined based upon "performance against electronic survivability service levels." [Ref. 6]

This incentive is also tied to the SLAs as four of the forty-four separate SLAs are related to IA. The IA SLAs include performance standards for several sub-measures that are based upon network intrusion testing. The contract provides that the contractor may receive an incentive amount up to $10 million per year. The specific amount of the IA incentive is determined by an incentive review board (IRB) at the end of each six-month evaluation period (with a maximum of $5 million available per period).

The fourth NMCI incentive is related to small and small disadvantaged business subcontracting participation. The stated purpose of this incentive is to "encourage continued small and small disadvantaged business participation at a level higher than the level of 40% over all and 10% subcontracted to the first tier." The contract provides that the contractor may receive an incentive amount up to $1.25 million per year. The specific amount of the small business incentive is determined by an incentive review board (IRB) at the end of each six-month evaluation period (with a maximum of $625,000 available per period). [Ref. 6]

The fifth incentive in the NMCI contract is related to utilization of Indian organizations and Indian-owned economic enterprises. The contract provides that the contractor is allowed payment of five percent of the dollar amount subcontracted to Indian organizations or enterprises at any sub-tier. The stated purpose of the incentive is to support DoD's Indian Incentive Program (IIP).

The NMCI contract incentives are coordinated with, and effectively tied to, the performance measures as expressed by the contract SLAs (which was a key recommendation described in Chapter III). The customer satisfaction incentive reinforces the fact that customer satisfaction is a sub-measure on most of the SLAs. Further, the customer satisfaction incentive is potentially far larger than all of the other incentives combined. If the contractor achieves the maximum available of $100 per seat, per quarter, they could earn more than $120 million per year once the contract is fully implemented (with over 300,000 users). This clearly emphasizes to the vendor that customer satisfaction is key to the program's success. The IA incentive is also tied to the SLAs as four of them directly relate to IA.

As previously discussed in Chapter III, the customer satisfaction surveys will be most effective if they solicit qualitative information to support the quantitative survey responses. The customer satisfaction surveys for NMCI are expected to be designed to solicit both objective and subjective information [Ref. 51].

The NMCI contract incentives relate directly to the program's strategic performance goals of supporting information superiority (in part through connectivity) and fostering innovation (in part through interoperability). Information assurance and customer satisfaction are specifically included in the seven "strategic performance measurement categories" included in the NMCI Execution Plan (as noted in the previous section). As discussed in Chapter III, it is vital that a contract's incentives be designed to incentivize the contractor to contribute to an organization's mission and goals.

The FOC incentive and the unique payment provision (i.e., 100% payment upon full SLA compliance) also emphasize to the contractor the importance of their technical performance. In addition, these incentives are related to the transition period in that they incentivize the contractor to complete the transition processes quickly to become eligible for additional payments. The small business and Indian organization incentives, conversely, serve to promote some of the Government's broader socio-economic goals.

As noted previously, the NMCI contract also contains penalty provisions. Under the heading of "credit for service downtime," the contract contains a service level incentive and penalty, or "SLIP," process whereby the contractor earns debits and credits of points in an account (known as a SLIP account) depending upon whether performance exceeds - or falls below - the standard for each performance measure within the SLAs. Specifically, when the contractor meets or exceeds the SLA metrics, points are deposited. If the contractor does not meet the SLA metrics, points are withdrawn. [Ref. 6]

At any point in time, the balance of points in the SLIP account (either positive or negative) provides a snapshot of service performance. At the end of the year, a positive balance of points does not result in additional incentive payments (as the contractor is rewarded for good performance primarily through the customer satisfaction incentive). However, a negative balance at year end will result in the contractor refunding a dollar amount (hence the penalty) up to 20% of the total seat price. The actual amount of the

refund would be based upon the number of negative points in the account at the end of the year multiplied by a predetermined dollar value for each point.

The NMCI approach to penalties complies with some of the commercial best practices discussed in Chapter III such as considering failure to meet individual SLAs (as well as aggregate performance requirements for which the penalty is the 85% payment provision). However, the NMCI contract penalty approach does not consider the other best practices such as having increasing penalties for continued poor performance or allowing some refund of penalties if required performance levels are restored quickly [Ref. 51].

E. PREPARING FOR THE TRANSITION TO NMCI

As discussed in Chapter III, a key challenge inherent in seat management contracting is preparing for, and facilitating, the actual transition to this new way of acquiring the services. As noted, there are two basic areas that must be addressed in transition planning. The first is the transition of the actual IT assets and services themselves (i.e., the "IT environment"), and the second is the transition of any displaced human capital as a result of outsourcing functions associated with supporting the desktop computing capability. Effective communication is vital to both of these transition areas.

It is important that all key stakeholders (e.g., managers, oversight personnel, vendor personnel, etc.) be kept appraised of progress on the transition as well as their roles and responsibilities in the transition (as well as during performance). As noted in Chapter III, GAO identified such communication as a commercial best practice for the outsourcing of large IT efforts.

As noted in Chapter II, the NMCI contract was awarded in October 2000. During the early transition period, frequent training sessions were held. These "execution training" sessions covered such topics as an overview of NMCI services; organization, responsibilities, and communications; contract overview; funding issues; incentives and penalties; invoicing and payment; various transition-specific issues; and risk management efforts [Ref. 53]. One such session (attended by the author) was held on December 5, 2000. Attendees at this early execution training included senior representatives of Navy

claimant commands (i.e., high level customer representatives), CORs, end-user representatives, and various contracting officials.

In addition to the early, high-level transition communication with key stakeholders, a well-developed process has been developed for site-specific transition efforts. This site-specific transition process (and related procedures) will apply for each individual Navy - or Marine Corps - activity transitioning to NMCI. The site-specific transition process focuses both on effective communication and on the technical procedures to transition the IT assets and services.

The site-specific transition process is outlined on the NMCI contractor's website for all interested parties to access. Figure 3 provides a summary diagram of the transition process in effect during early Fiscal Year 2003.

The first phase of the process is dubbed "planning change." Beginning when the contractor receives a site-specific task order to provide NMCI services, this phase can last up to ninety days. During this phase, the contractor is gathering information and making plans for "assumption of responsibility" (AOR) which is the point in time when the contractor takes over operational and financial responsibility for operating and maintaining the site's current legacy network (i.e., the existing, previously Government-owned IT resources). [Ref. 54]

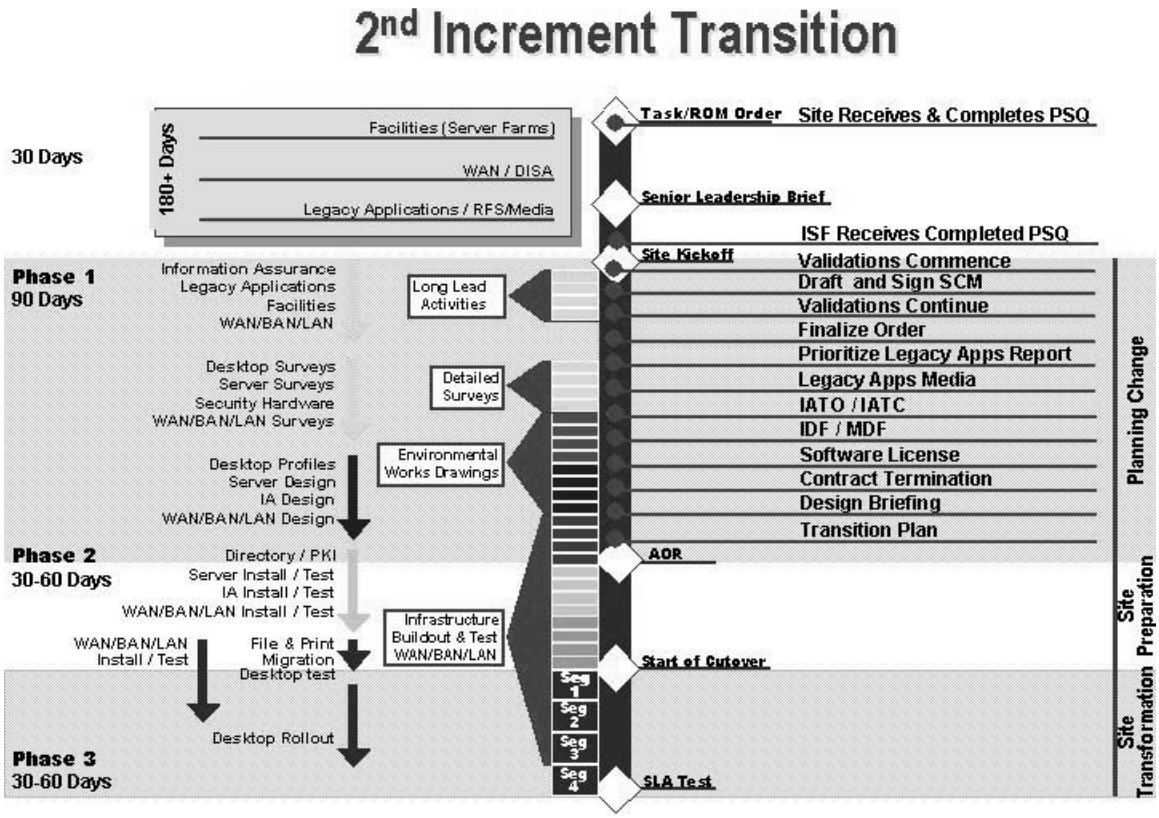

Figure 3. Site-specific Transition Process. [From: Ref. 53]

During this planning phase, each site will complete a "preliminary site questionnaire" (PSQ) to identify and document physical site information, currently existing infrastructure (including networks), and equipment (including network devices, servers, etc.). In addition, a "site concurrence memorandum" (SCM) is drafted, reviewed, approved, and executed by the Government site's leadership and the contractor. Similar to the "entity relationship agreement" (ERA) described in Chapter III, the SCM outlines such things as the specific roles and responsibilities of the parties, further documents facility and access information, establishes a desktop implementation schedule, documents any shared resources, and discusses various program support and coordination issues. [Ref. 54]

The other activities during this planning phase include identifying and documenting existing software licenses, planning for the termination of existing support

contracts, and identifying legacy (i.e., previously existing) site-specific IT applications that will need to be transitioned to the new NMCI environment.

In the area of legacy applications, a specific guide has been developed by the Government. Entitled the "Legacy Applications Transition Guide," this manual provides extensive information on such issues as "rapid certification" of the legacy application (to ensure it meets compatibility and information assurance requirements) as well as risk mitigation. In fact, there is a separately defined "legacy application transition process." [Ref. 55]

The planning phase - through such items as the PSQ and SCM - serves to document and communicate key information to the customer and contractor representatives who will execute the transition. This complies with the GAO guidance (discussed in Chapter III) calling for communication of clear transition processes to all key players and documenting key information.

The second phase of the site-specific transition process is called "site preparation." Beginning with the AOR date, this phase can last from 30 to 60 days and involves the contractor assuming responsibility for the legacy network while performing the infrastructure "build-out" to support the NMCI services. This entails installing and testing of new servers and networks, while planning for migration of desktop workstations and data files. [Ref. 54]

The third phase of the transition process is called the "site transformation" phase. This phase begins with "cutover," which is when the old desktop workstations are replaced with new NMCI workstations and end-users begin to access the NMCI network to perform their duties. Lasting another 30-60 days, this phase ends when the desktop rollout and data migration are complete, and SLA compliance is eventually achieved. During this final phase of the site-specific transition process, the contractor provides training to the end-users on such issues as data migration and usage of the new NMCI network environment. [Ref. 54]

As part of the end-user training during the final transition phase, the contactor has developed a "workstation migration" guide with specific information on how user files are migrated from the legacy network and workstation to the new NMCI environment.

The guide also provides instructions on how to access the NMCI portal home page, "post-migration" instructions for accessing applications and locating files, and instructions for backing up files and accessing transferred mail files [Ref. 56]. The end-user training during this phase also includes an Operational Readiness Overview presentation by contractor personnel where end-user questions and concerns may be addressed.

The strong communication with Government employees who are users of the new NMCI environment satisfies the GAO recommendations (noted in Chapter III) for communication of clear transition processes to all employees and employing basic change management strategies.

Interestingly, the site-specific transition process discussed above is also outlined on a Government website (maintained by the NMCI Director's office) for all interested parties to access. While the process outlined on the Government site also contains three phases, some confusion may arise as the Government has chosen to give the phases different names. As noted previously in this section, the three phases as outlined on the contractor's website (under a link titled "making the transition") are called "planning change," "site preparation," and "site transformation." However, on the Government website (under a link dubbed "transition to NMCI") the same phases are called "pre-AOR," "AOR to cutover," and "cutover." [Ref. 57]

Notwithstanding the different titles for the transition phases, the three phases appear to contain the same steps. In fact, several of the links on the Government website (e.g., the link for a sample SCM document) simply forward the web browser to the relevant items on the contractor's website. Potential confusion could be eliminated by hosting the transition process on a single website (hosted by either the Government or the contractor), or at a minimum, using consistent terminology.

As noted at the beginning of this section (and as discussed in Chapter III), planning for the transition of the IT environment is only one aspect of an effective transition to a seat management solution. The second critical aspect is to plan for the transition of any displaced human capital as a result of outsourcing the functions associated with supporting the desktop computing capability.

The NMCI contract contains a clause entitled "expertise transition requirement" that states, "to the extent that any civilian Government employees are or will be incidentally displaced due to the NMCI initiative, the Contractor shall offer one or more positions to each such employee for employment openings under the contract." The clause explains that the requirement applies to comparable positions for which the displaced employees are qualified, and that offers must comply with post-Government employment restrictions and conflict of interest standards. The clause also requires that any retraining of displaced Government employees that is necessary will be the responsibility of the contractor. [Ref. 6]

The transition information on the contractor's website explains the process for transition of displaced Government personnel to the NMCI contractor. The process provides that Government IT personnel (who are not otherwise reassigned or placed by the Government) will be formally identified by the Government to the contractor. The contractor will then host a "group meeting" with the impacted employees to provide information about employment with the contractor. Displaced employees wishing to work for the contractor will be able to sign up for a one-on-one meeting with a contractor personnel manager where a job offer will be made. [Ref. 54]

The NMCI contractor has committed to offering displaced employees employment "at or near" their current work location with a salary that is 15 percent higher than the employees' current salary, along with a three percent signing bonus. In addition, the contractor guarantees three years of employment (although employees may be terminated "for cause"). The contractor further provides that the employees' "prior service date" with the Government will be recognized for benefits eligibility, vesting and early retirement eligibility for the contractor's retirement plan, and calculation of the annual retirement benefit. In addition, the contractor has committed to recognizing the employees' "attained vacation level" if higher than otherwise allowed under the contractor's vacation program. [Ref. 54]

The provisions of the NMCI program to deal with displaced human capital far exceed the traditional "right of first refusal" clause requirements. Further, the NMCI provisions comply with the recommendations noted in Chapter III that the plan for

transition of displaced personnel utilize bonuses and incentives to encourage transition to the contractor. Also, the presence of detailed information on the contractor's website and the "group meeting" provision focus on communication with impacted employees and the employment of basic change management strategies.

F. MANAGING CULTURE CHANGE

As described in Chapter III, one of the most difficult challenges associated with seat management contracting is managing the organizational culture change needed to successfully implement the new method of contracting for desktop computing power. As noted, culture refers to "norms of behavior and shared values" among the members of an organization, and shared values are those "important concerns and goals held by most people in the group" that, in turn, shape the norms of behavior.

Because seat management contracting represents a significant change to the way desktop computing capability is acquired and managed, change management strategies are important to building understanding and commitment to the new approach. As discussed in Chapter III, the short-term goal of managing the necessary culture change is to build ownership of - and dedication to - the seat management approach, while the long-term goal is to successfully implement the new concept. Chapter III identified effective communication as the single most important tool in managing the required culture change as noted by GAO.

Since the award of the NMCI contract in October 2000, communication has taken many forms. As discussed in the previous section, early "execution training" sessions were provided to key stakeholders including senior representatives of Navy claimant commands (i.e., high level customer representatives), CORs, end-user representatives, and various contracting officials. These sessions covered such topics as an overview of NMCI services; organization, responsibilities, and communications; contract overview; funding issues; incentives and penalties; invoicing and payment; various transition-specific issues; and risk management efforts. A key purpose of this training was to educate stakeholders that seat management is a performance-based service in order to counter fears related to loss of control by turning over IT assets to the contractor.

As noted in Chapter III, there are other concerns that also must be addressed in order to diffuse resistance to seat management and foster the necessary culture change throughout the organization. These other concerns include the fear that seat management contracts lack flexibility and the "sticker shock" when an organization realizes the true cost of its desktop computing capability.

With regard to the fear of a lack of flexibility, there have been some NMCI success stories that have been communicated. A dramatic success story – and example of seat management flexibility – was reported in *Chips Magazine*, the Navy's IT publication. As a result of the terrorist attacks of September 11, 2001, much of the Navy's Pentagon communication capabilities were lost. The Navy was faced with a vast challenge – the "immediate restoration and reconstruction of its leadership's IT platforms." The most significant problem was the need to reconstruct the Navy Communication Center and the Navy Budget Office, both of which were completely destroyed in the attack. [Ref. 58]

The Navy's leadership realized that by utilizing the NMCI contract to reconstitute their IT capabilities, recovery time would be reduced by "more than half." On September 14th, workstations and fiber optic cabling were deployed from the NMCI contractor's staging facility and routers and switches were deployed from a subcontractor's facility. By the morning of September 15th, initial operational capability was established in temporary facilities for the Navy Communication Center. By September 17th, initial operational capability was established for the Navy Budget Office. By September 19th, merely eight days after the attack, the "crisis relocation" efforts were completed and the NMCI program allowed the Navy to recreate all of the computing capabilities lost in the attack with 700 employees back online conducting Navy business. [Ref. 58]

By communicating such dramatic success stories, fears regarding any lack of flexibility associated with seat management (and the resistance to change that such fears engender) can be quickly put to rest. With regard to the "sticker shock" issue, effective communication has also worked to overcome the problem (noted in Chapter III) where the leaders or comptroller of an organization are reluctant to initially endorse a "seat

price" of $3,500 - or more - per year to get (in their perception) a desktop computer that can be bought at the local office supply store for a one-time outlay of $2,000.

Figures from the Navy's business case analysis (BCA) were published in *Chips Magazine* to document that the Navy had computed a figure in excess of $3,800 per year per person as the "before NMCI" cost to obtain the services that would be provided more effectively (and less expensively) under the NMCI contract. At the time the article appeared, an average figure of $3,412 was used to demonstrate savings as a result of NMCI implementation. [Ref. 59]

Of interest, the Navy almost did not have the BCA figures available to counter the "sticker shock" issue. In early 2000, before contract award, the program was criticized by (GAO) for proceeding prior to developing a formal analysis of alternative program options and completing a business case analysis. GAO was critical that the Navy had proceeded to issue a solicitation for the NMCI program under the impression that it was not required to comply with Department of Defense (DoD) Regulation 5000.2-R regarding major automated information systems (MAIS) programs. As a result of the GAO inquiry, the Navy proceeded to develop a business case analysis to demonstrate the viability of its chosen approach by comparing the current state of IT within the Department to the "to be" state envisioned by NMCI. By doing so, the Navy was able to demonstrate the viability of its seat management approach and the superiority of that solution over other potential alternatives. In addition to satisfying GAO (and Congress), performing the BCA also provided ammunition to battle the "sticker shock" that could lead to resistance to the change. [Ref. 60]

As noted in Chapter III, communication is the key to effective change management and overcoming the resistance that is surfaced. However, in order build true commitment to the change, communication must come (at least partially) from the most senior levels of the organization. Such communication must define the changes taking place, articulate the new vision, and provide the reasons for the change to seat management. This high level communication must demonstrate that the top leaders are truly committed to the change.

With regard to the NMCI program, the Navy's *Chips Magazine* has been a key tool to repeatedly stress the senior leadership's support for NMCI. The Secretary of the Navy (SECNAV) himself wrote that "we must, and we will, defeat the threat of global terrorism" with unmatched combat capability. Key components of the Navy's combat capability arise from the use of new technologies and better business practices. According to SECNAV, information technology will "serve the warfighter by improving the processes of our supporting infrastructure and freeing up funds and billets for combat purposes." It was also noted that by using IT, "we can leverage better business practices to achieve savings and improve the overall organization." NMCI is a key component of using IT to support the warfighter. [Ref. 61]

Another example of senior leadership's support and commitment was provided when the Program Executive Officer for IT (PEO-IT) wrote that the new vision of being able to "make decisions faster and solve problems faster" is enabled by NMCI through improved knowledge sharing. As articulated by PEO-IT, the goals of NMCI are to "improve information security, to improve interoperability, to enable information superiority and optimize the cost per unit of service across the Enterprise." [Ref. 59]

Effective communication - including demonstrated commitment of the organization's top leaders - appears to have been fairly effective at countering resistance to change and promoting the culture change necessary for the successful implementation of NMCI. Articulation of the new vision, and the reasons behind the changes taking place, has been communicated to stakeholders and employees through a variety of forums, including *Chips Magazine*. Frequent reinforcement of the anticipated benefits of NMCI has helped to address resistance to the change while building understanding of - and commitment to - NMCI.

While the leadership's commitment to NMCI and the benefits to be derived from it have been effectively communicated, there is an opportunity for improvement in communicating the expected cost savings as a result of the BCA. With the exception of the one *Chips Magazine* article noted, the author found no evidence that the BCA figures have been otherwise promulgated to employees or activity comptrollers (who will be

funding their local NMCI services). Anecdotal evidence suggests that there is still a "sticker shock" problem within the enterprise.

An opportunity for improvement also exists with regard to more effectively communicating the flexibility of the program. While most of the stakeholders and many employees are aware of the dramatic success story related to the Pentagon, there are smaller success stories that can be communicated to further address any perceptions of a lack of flexibility in seat management contracting. For example, the activity where the author works was flooded in February 2003, due to a steam heat malfunction. The legacy desktop computer workstations were damaged and rendered unusable (along with much of the facility). By exploiting the NMCI program, temporary workspaces for scores of employees were set up in training rooms and conference rooms in nearby buildings. The NMCI contractor accelerated the activity's cutover to NMCI and successfully deployed nearly 100 workstations in only a few days.

Such smaller success stories may be more relevant to most users and should be promulgated. There may be a willingness on the part of program officials to use the NMCI Director's website (which is relatively new) to promulgate such "stories and lessons learned." [Ref. 51]

Considering the difficult and complex task of managing culture change, the NMCI program has come a long way in its first two years by surfacing and addressing sources of resistance and working to build acceptance of, and dedication to, the implementation of a large and complex seat management effort.

G. CHAPTER SUMMARY

This chapter provided a detailed examination of the NMCI program's approach to addressing the challenges associated with seat management that were explored in Chapter III. The most significant challenges inherent in this method of IT contracting involve benchmarking technical performance requirements, establishing performance measures, creating effective incentives, preparing for the transition to seat management, and managing the required culture change. In each of these key areas, the NMCI program has implemented many of the recommendations discussed in Chapter III, including both

those that originated from GAO recommendations and those that are commercial best practices.

However, there are still some opportunities for improvement in addressing the challenges associated with seat management contracting. A few adjustments to the program's approach can help increase the likelihood that NMCI will achieve its expected benefits. The next chapter, Chapter V, provides the thesis conclusions, answers to the research questions, recommendations for improvement, and suggestions for further research.

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V. CONCLUSIONS AND RECOMMENDATIONS

A. INTRODUCTION

This chapter provides a summary of the preceding chapters by furnishing answers to the primary and secondary research questions that were posed in Chapter I. This chapter also provides conclusions resulting from the preceding analysis of the NMCI program's approach to addressing the challenges associated with the seat management method of information technology contracting. As a result of the research and analysis performed by the author, recommendations are provided as to where improvements can be made in order to increase the likelihood that NMCI will achieve its expected benefits. This chapter concludes with recommendations for further research or examination.

B. ANSWERS TO THE RESEARCH QUESTIONS

As outlined in Chapter I, and explored in subsequent chapters, the author set forth to answer specific research questions regarding the seat management method of contracting for IT capability, the challenges associated with seat management, and the NMCI program's response to those challenges. The answers to the research questions are presented below.

1. Primary Research Question

How well is the NMCI program responding to the challenges associated with seat management contracting and where can improvements be made?

Overall, the NMCI program has a well-developed and logical approach to dealing with the challenges inherent in the seat management method of contracting for desktop IT capability. With respect to each of the key challenges identified and explored in this thesis, the program is implementing many of the recommendations explored in Chapter III, including both those that originated from GAO recommendations and those that are commercial best practices.

There are, however, opportunities for improvement where a few adjustments to the program's approach may help increase the likelihood that NMCI will achieve its expected benefits. More details regarding the challenges and the opportunities for

improvement are provided in the answers to the secondary research questions, in the thesis conclusions, and in the recommendations provided in this Chapter.

2. Secondary Research Questions

a. What is the seat management approach to contracting for IT resources?

Sometimes referred to as "desktop outsourcing," seat management is the process wherein organizations outsource the ownership and maintenance of their networked desktop personal computers, including all required components and support. The contractor becomes responsible for buying and maintaining the technology, providing support services (such as help desk support), and lifecycle management.

In its simplest terms, seat management is where an organization buys its desktop computing power as a unified service with pricing computed on a per user (or per "seat") basis whereby the contractor is responsible to deliver all hardware, software, network support, planning/design, maintenance/installation, and periodic technology refreshment. In a seat management environment, the contractor maintains ownership of all the resources (e.g., network hardware, desktop hardware, software, etc.) and delivers the resultant computing capability - and all related support - as a performance based service, sometimes likened to a utility.

Similar to most outsourcing initiatives, the theory is that by transferring ownership of (and responsibility for) its IT resources, an organization can focus on its core missions while leaving the provision and maintenance of IT capabilities to firms that specialize in it.

The NMCI contract was awarded in October 2000 and will eventually provide seat management services to roughly 360,000 Navy and Marine Corps users. The performance-based, IDIQ contract with Electronic Data Systems Corporation has a maximum value (including the option period) of $6.9 billion. While the NMCI contract includes other "access devices" (such as laptops, portable and embarkable workstations), the fixed, desktop workstations (i.e., networked PCs) are the largest component of NMCI.

b. What are the expected benefits of a seat management approach?

As discussed in Chapter II, lower costs (as are often associated with outsourcing efforts) are not necessarily an expected outcome when seat management is implemented.

Nevertheless, there are some distinct and tangible benefits associated with seat management. Most of these benefits are technical in nature. For example, with proper structuring of the requirements and the contract, commercial expertise and best practices can be leveraged to result in better network response time, more reliable system availability, and reduced downtime.

Another way of looking at the potential benefits of seat management is from the perspective of enterprise management. In large and complex organizations, replacing multiple smaller networks with a single, enterprise-wide managed service, can result in improved interoperability and access, more visibility of IT costs, and collateral savings. Collateral savings can be found by transitioning to a common operating environment which can lead to real savings in logistics and software support, while increasing the ability of those within the enterprise to collaborate using common sets of software.

An important benefit of a seat management contract (especially when combined with an enterprise management perspective) is improved security. When consolidating networks, multiple access points are eliminated reducing points of vulnerability in the system.

Technology refreshment is another advantage of seat management contracting and consists of the periodic replacement of commercial off-the-shelf components such as processors, displays, operating systems, software, etc., to support the continued operation of the system through an indefinite service life. Technology refreshment is a way to extend the useful life of the IT resources while keeping up with technological advances in the marketplace.

As an additional benefit, seat management offers the ability to free up personnel resources that had previously been performing routine tasks associated with the desktop IT resources (e.g., helpdesk personnel). By transferring the ownership and responsibility for the resources to commercial vendors who specialize in IT support, employees can focus on an organization's core mission rather than buying and maintaining desktop computer workstations.

c. What are the expected benefits of NMCI?

The NMCI program hopes to achieve many of the same benefits as may be found in other seat management efforts. For example, the Navy hopes to achieve several important benefits from the perspective of enterprise management. Once fully implemented, the NMCI contract will consolidate individual networks at over 300 military bases into a single, enterprise-wide managed service.

In addition to the generic benefits to be derived from an enterprise-wide approach (such as improved interoperability and more visibility of IT costs), transitioning to a common operating environment is expected to lead to real savings in logistics and software support, while increasing the ability of those within the Navy to collaborate using common software applications. With regard to savings in logistics and software support, 3955 separate applications were identified across the Navy and Marine Corps and, of those, 1915 were eliminated leading to notable savings.

The ability to collaborate using an enterprise-wide network and common software products offers tremendous benefits beyond savings in logistics and support. In the case of the NMCI contract, NMCI will allow faster exchange of information between the warfighters in the field and the shore-based support organizations, enhancing lines of communication and reach-back capability.

With regard to the expected benefit of improved security, the NMCI contract was particularly designed to include stringent information assurance requirements and to implement a higher level of security management than the Navy and Marine Corps had previously experienced.

Technology refreshment offers yet another significant benefit to the Navy. Under the NMCI contract, software is updated annually or to maintain one revision from the current state, while hardware is updated every three years. By turning the technology refreshment over to the contractor, the Navy will avoid the burden of planning and budgeting in the traditional fashion for upgrades to multiple, disparate networks. During the life of the NMCI contract, the Navy will not incur technology refreshment costs beyond the known seat pricing.

NMCI also hopes to achieve a benefit from seat management's ability to free up personnel resources that had previously been performing routine tasks associated with the desktop IT resources. This is particularly important in the military realm where one of the stated purposes of the NMCI contract is to allow service members and Federal employees to be refocused on core Navy missions. This benefit of seat management contracting is even more important in today's climate where the Government is finding it more difficult to compete with the private sector for IT personnel.

Of course, NMCI also hopes to achieve the technical benefits of seat management such as better network response time, more reliable system availability, and reduced downtime.

d. What are the challenges and concerns associated with seat management contracting?

There are several key challenges associated with the seat management method of contracting for desktop IT capability. The most significant challenges, which were explored in detail in Chapter III, involve benchmarking technical performance requirements, establishing performance measures, creating effective incentives, preparing for the transition to seat management, and managing the required culture change. By structuring the requirements and the contract to effectively address these challenges, there is an increased likelihood that the expected benefits of the seat management effort may be obtained.

Benchmarking technical performance requirements is a way to define the technical requirements of a seat management contract (or any IT contract) in an environment of rapid technological changes. It is not practical to set forth absolute technical standards in a contract that will last many years, as rapid advances in the marketplace would make such standards quickly outdated. A benchmark is a minimum industry-based standard that must be met and serves to take into account changes in technology. Setting benchmarks for the technical requirements not only accommodates technology advances, but also allows for monitoring contractor compliance with requirements to keep up with those advances.

Of course, to be effective, the benchmarks used must be simple, consistent, relevant to end-user needs, and clearly understood by all parties. Further, decisions must be made as to how often the benchmarks will be revisited (to ensure that they remain relevant) and how it will be determined whether the solutions provided by the contractor satisfy the benchmarks.

Establishing effective performance measures is a performance management issue that aims to: (a) define the minimum acceptable performance standards to be met by the contractor; and (b) set forth a performance monitoring approach to determine whether or not the performance standards are met. In its simplest terms, this is the process of monitoring vendor performance against the contractual requirements.

Seat management arrangements (and other IT contracts) include performance measures rooted in the tactical performance management concept of service levels. Such service level performance management is usually defined and managed through the use of "service level agreements" or SLAs. A SLA is a contracting tool whereby customers and vendors agree up front which services and performance levels will be provided and how success or failure will be measured. Essentially, a SLA is a contractual commitment to meet specific service goals, along with the methods to monitor performance. It is vital that SLAs are adequately defined, thorough, and consistent, while only measuring performance that is under the control of the contractor. Further, performance reporting requirements and change management need to be considered.

Creating effective incentives is a key challenge inherent in all performance based service contracting (including seat management efforts) and is related to the selected performance management strategies and the use of effective performance measures. Incentives can stand alone or can be combined with penalties for a "carrot and stick" approach to motivating contractor performance. A common approach to incentives in seat management efforts is to relate the incentives (and often penalties, as well) to the performance measures defined by the SLAs.

In addition to coordinating the incentives with the performance measures, the incentive strategy should focus on customer satisfaction, consider the transition period, and support the strategic goals of the organization. In the Government contracting arena,

incentives often relate to socio-economic goals. When penalties are included in the incentive strategy, there are recognized best practices for their application.

The transition to seat management is a two-fold challenge. The first area addressed is the transition of the actual IT assets and services themselves (i.e., the "IT environment"), and the second is the transition of any displaced human capital as a result of outsourcing functions associated with supporting the desktop computing capability. Effective communication and change management strategies are vital to both of these transition areas.

With regard to the first area, a clear transition process must be communicated to both key stakeholders and all affected parties. "Entity Relationship Agreements" are a common commercial practice to document such items as roles and responsibilities during the transition, pre- and post-transition activities, shared resources, security, and legacy system connectivity. With regard to the transition of human capital, communication with affected employees is critical. Special contract provisions, and bonuses or incentives, can be used to encourage transfer of excess staff to the service provider.

Another significant challenge is managing the required organizational culture change when implementing a seat management contract. As seat management represents a significant change to the way desktop computing capability is acquired and managed, change management strategies are important to build understanding and commitment to the new approach. The short-term goal of managing the necessary culture change is to build ownership of - and dedication to - the seat management approach, while the long-term goal is to successfully implement the new concept.

Effective management of the required culture change requires the education of stakeholders, dealing with fears regarding a loss of control (as ownership and management of the IT environment is being turned over to a contractor), and addressing the potential "sticker shock" if members of the organization do not know the true cost of networked PC ownership. Commitment of the organization's leadership and effective communication are vital to managing the necessary culture change.

e. How well is the NMCI program responding to those challenges?

The NMCI program has a well-developed and logical approach to dealing with the challenges inherent in the seat management method of contracting for desktop IT capability. With respect to each of the key challenges identified and explored in this thesis, the program is implementing many of the recommendations explored in Chapter III, including both those that originated from GAO recommendations and those that are commercial best practices.

With regard to benchmarking technical requirements, the NMCI contract references the generic benchmark known as "state-of-the-shelf" in order to deal with the challenge of defining the technical requirements of the contract in an environment of continual change. This term refers to the best technology that is currently (and sufficiently) available in the marketplace. Using a state-of-the-shelf benchmark recognizes a commercial best practice balancing of technology, usability, stability, and value.

The NMCI contract specifies four different types of basic "fixed workstation seats" (i.e., networked desktop PCs) denoted as "red," "white," "blue," and "thin-client" seats. As an example of the use of benchmarking, the contractually specified technical requirement for a "red" seat (the highest priced basic workstation) demands "performance equal to or greater than 75 percent of the performance of the high-end commercially available state-of-the-shelf workstation at the time it is deployed and refreshed."

While use of the "state-of-the-shelf" benchmark in the NMCI contract is reasonably simple and consistent, it is not necessarily well understood by all parties based upon the information contained in the contract. In order to deal with this situation, the NMCI contractor posts to its website a current description of the technical specifications delivered for each type of seat. These specifications are Government approved and represent - at any given time - the exact type of hardware that will be provided for each type of seat available under the contract.

In order to establish effective performance measures, the NMCI contract includes SLAs to establish the performance-based service goals that the contractor is to meet when delivering services. As modified, the contract includes forty-four separate SLAs that are

geared toward broad areas categorized as user upgrades, end-user services, maintenance and help desk services, communication services, system services, information assurance services, and "other" requirements.

Each SLA contains various "sub-measures," ranging in quantity from one to eleven per SLA (although most SLAs have four or more). These sub-measures are essentially the "service level objectives," or specific areas within each SLA that are measured. Common sub-measures (that appear in many of the individual SLAs) focus on customer satisfaction, service availability, system responsiveness, and interoperability. The SLAs include reporting requirements and reserve Government or third party audit rights.

With regard to creating effective incentives, the NMCI contract contains a multi-tiered approach. There are five discreet financial incentives available to the contractor, of which one is explicitly contingent upon the contractor meeting the contract SLAs. Although it is not specifically described as one of the five contract incentives, the NMCI contract contains a unique payment provision that certainly acts as an incentive. The contract provides that the contractor will only receive payments totaling 85% of the contractual seat prices during the transition period until such time as the contractual SLAs are met. There is also a penalty process that is directly related to contractor performance as measured by the SLAs.

The first of five explicit incentives in the NMCI contract is a one-time incentive payment of $10 million when the contractor successfully achieves full operational capability, which is defined as when the "steady state contract guaranteed number of users having the ability to receive ordered services." The second NMCI incentive is related to customer satisfaction. Per the terms of the contract, the customer satisfaction incentive applies only if the contractor meets the SLAs. The contract provides that customer satisfaction will be determined by quarterly surveys of users.

Assuming that the SLAs are met, the customer satisfaction incentive is $25 per seat, per quarter, if more than 85% of users rate NMCI services as "above average" on the satisfaction survey. The incentive is $50 per seat, per quarter, if more than 90% of users

rate the services as "above average" on the survey, and $100 per seat, per quarter, if more than 95% of users rate the services as "above average."

The third incentive in the NMCI contract is related to information assurance (IA) in order to focus continued high level attention on IA as the actions necessary to secure information will change as new attack methods are developed. An incentive review board determines the amount of the IA incentive at the end of each six-month evaluation period (with a maximum of $5 million available per period).

The fourth NMCI incentive is related to small and small disadvantaged business subcontracting participation. The contractor can earn a maximum of $625,000 each six-month evaluation period if specific subcontracting goals are met. The fifth incentive, similarly, is related to utilization of Indian organizations and Indian-owned economic enterprises. The contract provides that the contractor is allowed payment of five percent of the dollar amount subcontracted to Indian organizations or enterprises at any sub-tier.

The NMCI incentives are related to the performance measures as expressed by the SLAs through the customer satisfaction incentive (which is potentially larger than the other incentives combined). The incentives also relate directly to the NMCI program's strategic goals. The penalty process is based upon points accumulated in a service level incentive and penalty - or "SLIP" - account. The penalty provision is directly tied to the performance measures as expressed via the SLAs.

The program has a well-developed process to address preparing for the transition to NMCI. Transition planning focuses on both the transition of the IT environment (the actual IT assets and services) and the transition of any displaced human capital no longer required due to outsourcing of the management and support of the desktop workstations. Communication with stakeholders and a thorough site-specific transition process allows for effective transition of the IT environment. The three-tier, site-specific NMCI transition process includes stages identified by the contractor as "planning change," "site preparation," and "site transformation."

In order to smooth the transition of displaced Government employees, the contract contains an explicit provision requiring the contractor to offer positions to excess personnel. The contractor offers bonuses and incentives to encourage the transition of

excess staff to the contractor's payroll. The NMCI provisions to deal with excess human capital far exceed those of traditional "right of first refusal" clauses.

Managing culture change has been a complex issue for NMCI. Frequent communication has been the cornerstone of the Navy's change management process. Stakeholders were educated early in the process and consistent messages of support and commitment from the agency's leadership have worked diligently to build acceptance and ownership of NMCI throughout the enterprise.

Well-publicized success stories (such as the quick reconstitution of Pentagon computing power after the 2001 terrorist attack) have worked to dispel fears regarding a lack of flexibility in the contract approach. A business case analysis was performed to document data that can be used to dispel the "sticker shock" that can accompany a move to seat management.

C. THESIS CONCLUSIONS

The primary conclusion of this thesis is that, overall, the NMCI program has a logical and well-developed approach to dealing with the challenges inherent in the seat management method of contracting for desktop IT capability. With respect to each of the key challenges identified and explored in this thesis, the program is effectively implementing many of the recommendations identified during the literature review. As described in Chapter IV, the structuring of the requirements and the contract, along with the actual program execution, have applied most of the GAO recommendations and commercial best practices explored in Chapter III.

The NMCI program's well-developed approach to addressing the challenges and concerns associated with seat management contracting is a testament to the pre-award and post-award efforts of the Government program and contracting officials. The positive and collaborative relationship between the Government and the NMCI contractor has also contributed to the effective response to dealing with the challenges inherent in this contracting method.

The secondary conclusion of this thesis is that, notwithstanding the well-developed approach in place, there are opportunities for improvement where a few

adjustments to the program's approach may help increase the likelihood that NMCI will achieve its expected benefits. While the program has implemented most of the recommendations explored earlier in this thesis, there are a few that have not been employed. Additionally, there are some opportunities for improvement in some areas where the recommendations have been implemented. The author's recommendations for improvement are set forth in the next section.

D. RECOMMENDATIONS FOR IMPROVEMENT

1. Technical Requirement Benchmarks Should Be Revisited Periodically

The NMCI program would be well served to develop a plan for periodically revisiting the benchmarks utilized to define the contract's technical requirements. The contract requirements for fixed workstations (i.e., networked PCs) are based upon a "state of-the-shelf" benchmark.

For example, the specified technical requirement for a "red" seat (the highest priced basic workstation) demands "performance equal to or greater than 75 percent of the performance of the high-end commercially available state-of-the-shelf workstation at the time it is deployed and refreshed." The program has provided a way for the benchmarks to be translated into currently available specifications (as posted on the contractor's website) that are approved by the Government on a quarterly basis.

However, there is no provision for the benchmarks themselves to be revisited to determine whether or not they should be updated to remain relevant to changing user needs. As user needs evolve over time (and in response to technological advancements in the marketplace), it is unclear if performance equal to 75 percent "of the performance of the high-end commercially available state-of-the-shelf workstation" will be as effective or appropriate in meeting end user needs as it was at the time the benchmark was established in the contract.

The author recommends that the NMCI program institute a plan to revisit the benchmarks themselves on an annual basis to ensure that the benchmarks remain relevant to end-user requirements. A user survey could be utilized to gauge how well end-users perceive that the "red," "white," "blue," or "thin client" seats are satisfying their mission

needs. By periodically revisiting the benchmarks, the NMCI program can ensure that the IT capabilities provided remain the best solution available to support the Navy's mission.

2. Service Level Agreements Should Be Streamlined

The NMCI program should undertake an effort to streamline the selected performance measures. As modified, the NMCI contract contains forty-four separate service level agreements - or SLAs - that prescribe the specific service goals to be met and the methods of monitoring contractor performance. Each SLA contains various sub-measures (or service level objectives) ranging in quantity from one to eleven per SLA, although most SLAs have at least four sub-measures.

Considering the forty-four individual SLAs, and the numerous sub-measures, there are fully 201 individual performance aspects that are measured. To further complicate matters, each of these 201 performance aspects has three separate standards depending upon required "levels of service" which are defined by the options that may have been ordered with a given seat. Specifically, each performance aspect has one standard for a "basic" seat (i.e., without any ordered options), another standard for a "high-end" seat (i.e., ordered with the high-end upgrade package), and a third standard for a "mission critical" seat (i.e., ordered with the mission critical upgrade package).

Considering the 201 individual performance aspects and the three different standards for each, there are over 600 specific performance metrics that must be monitored and reported. While such an extensive, enterprise-wide program as NMCI should be expected to have numerous performance measures, there is a tradeoff. Such an extensive number of performance measures requires a great deal of resources (both from the contractor and from the Government) to monitor the contractor's compliance.

While it is important to use an adequate number of measures to monitor the important areas of performance, it is also important to restrict the number of measures to only those that are truly critical to the mission of the organization.

The author recommends that the NMCI program undertake an effort to reduce the number of SLAs to only those that are truly critical to the two main NMCI strategic goals of information superiority (emphasizing connectivity) and fostering innovation (emphasizing interoperability). In addition, an effort should be made to reduce the

redundancy in the current number of sub-measures. For example, customer satisfaction can be combined into one SLA vice the current format where customer satisfaction is a discreet sub-measure appearing dozens of times across the various SLAs. A similar approach can be used for the sub-measures that currently cross many of the SLAs related to availability, responsiveness, and interoperability.

By streamlining the SLAs so they cover only those performance areas that are truly critical for the program's success, efficiencies may be gained and a clear message is sent to the contractor as to the performance areas that are vital for the Navy's success.

3. Service Level Agreement Management Should Be Improved

The NMCI program would be well served to develop a plan for periodically revisiting the SLAs themselves. As user needs evolve over time, and as technology advances, the service levels expected from a contractor (and the most effective methods of monitoring performance) are likely to change.

Similar to the prior recommendation related to benchmarking technical requirements, the author recommends that the NMCI program institute a plan to revisit the SLAs themselves on an annual basis to ensure that the selected performance measures remain relevant to end-user requirements. By periodically revisiting the selected SLAs, the NMCI program can ensure that the service levels provided remain effective in supporting the Navy's mission.

In addition, the author recommends that the NMCI program consider the viability of implementing performance measures calling for escalating performance standards at regular intervals. A further recommendation is that a plan be developed to compare the contractor's performance over time (as measured by the SLAs) to other contractors' performance on similar seat management efforts. Although there is no other contract exactly like NMCI, certain performance aspects (such as network availability) can be benchmarked against the performance of other contractors on smaller, non-military seat management efforts.

4. The SLIP Process Should Consider Penalty Best Practices

The NMCI program should consider modifying the service level incentive and penalty, or "SLIP," process to implement additional best practices. Under the SLIP

process, the contractor earns debits and credits of points in an account (known as a SLIP account) depending upon whether performance exceeds - or falls below - the standard for each performance measure within the SLAs. Specifically, when the contractor meets or exceeds the SLA standards, points are deposited, whereas points are withdrawn if the contractor does not meet the SLA standards.

At the end of the year, a positive balance of points does not result in additional incentive payments (as the contractor is rewarded for good performance primarily through the customer satisfaction incentive). However, a negative balance at the end of the year will result in the contractor refunding a dollar amount (hence the penalty) up to 20% of the total seat price. The actual amount of the refund would be based upon the number of negative points in the account at the end of the year multiplied by a predetermined dollar value for each point.

The NMCI approach to penalties complies with some of the commercial best practices explored in Chapter III such as considering failure to meet individual SLAs (as well as aggregate performance requirements for which the penalty is the 85% payment provision). However, the NMCI contract penalty approach does not consider the other best practices such as having increasing penalties for continued poor performance or allowing some refund of penalties if required performance levels are restored quickly.

The author recommends that the NMCI program consider the desirability of modifying the SLIP process to provide for increasing penalties for extended periods of SLA noncompliance and to provide the potential for withdrawn points to be recovered in those instances where SLA compliance is quickly restored. The penalty process can serve as a key complement to the incentive approach in motivating contractor excellence.

5. Site-specific Transition Information Should Be Uniform

The NMCI program should make the various sources of site-specific transition information consistent with each other by utilizing uniform labels for transition phases. The well-developed transition process as outlined on the contractor's website has three phases dubbed "planning change," "site preparation," and "site transformation." However, the similarly described site-specific transition process defined on the NMCI Director's website (a Government site) labels the three phases as "Pre-Assumption of

Responsibility," "Assumption of Responsibility to Cutover," and "Cutover." While it seems clear from the tasks and processes contained within each that the phases are the same between the two websites, the different labels may nonetheless create confusion.

The author recommends that uniform labels be applied to the site-specific transition phases regardless of whose site (Government or contractor) is accessed for the information. A further recommendation is that the transition information be hosted on a single website with a simple link from the other location to ensure the utmost consistency. Eliminating unnecessary confusion and redundant information repositories can only help to smooth the transition process.

6. Business Case Analysis Information Should Be More Widely Available

The NMCI program should consider more broadly publicizing the results of the business case analysis (BCA) that justified to Congress that NMCI was not more costly than the pre-NMCI methods of providing desktop IT capability. One of the most complex challenges when implementing a seat management contract is managing culture change. One source of organizational resistance that must be surfaced and dealt with is the potential "sticker shock" as most users (and comptrollers in the Navy's case) do not appreciate the true cost of networked PC ownership.

Effective communication is important to overcome the problem whereby the leaders or comptroller of an organization are reluctant to initially endorse a "seat price" of $3,500 - or more - per year to get (in their perception) a desktop computer that can be bought at the local office supply store for a one-time outlay of $2,000.

Figures from the Navy's BCA documented that the Navy had computed a figure in excess of $3,800 per year per person as the "before NMCI" cost to obtain the services that would be provided more effectively (and less expensively) under the NMCI contract. At the time the figure was computed, an average seat price figure of $3,412 was used to demonstrate savings as a result of NMCI implementation.

The BCA (which will presumably be updated periodically) can provide strong ammunition to battle the "sticker shock" that could contribute to ongoing resistance to the implementation of NMCI. With the exception of one *CHIPS Magazine* article, it appears that the figures from the BCA have not been widely publicized.

The author recommends that a summary of the BCA be broadly communicated to site-specific organizational leaders and end-users as NMCI continues to roll out seats across the enterprise.

7. Smaller Success Stories Should Be Publicized

The NMCI program should establish a method of communicating relevant success stories that can help surface and overcome organizational resistance based on fears that seat management lacks flexibility. There have been some dramatic NMCI success stories that have been communicated. For example, one success story – and example of seat management flexibility – was the NMCI contractor's efforts to quickly reconstitute the Navy's lost IT capabilities after the terrorist attack on the Pentagon in September 2001.

While most of the stakeholders and many employees are aware of the dramatic success story related to the Pentagon, there are smaller success stories that may be more relevant to most users and should be promulgated to further address any perceptions of a lack of flexibility in seat management contracting. For example, the activity where the author works was flooded in February 2003 rendering the legacy desktop computer workstations unusable (along with much of the facility). By exploiting the NMCI program, temporary workspaces for scores of employees were set up in training rooms and conference rooms in nearby buildings. The NMCI contractor accelerated the activity's cutover to NMCI and successfully deployed nearly 100 workstations in only a few days ensuring that Navy business could quickly resume.

The author recommends that smaller success stories be promulgated to help surface and address any resistance based on fears that NMCI lacks flexibility. The NMCI Director's website (which is relatively new) may be a suitable venue to promulgate such success stories and examples of flexibility. As NMCI is still being implemented across the Navy and Marine Corps, it is important that the program continue its efforts to manage culture change and overcome organizational resistance.

E. RECOMMENDATIONS FOR FURTHER RESEARCH

1. Examine the Actual Average Ordered Seat Pricing

Now that a significant number of seats have been ordered under the NMCI program, a study can be performed to compare the actual average seat prices (as ordered) with the figures from the business case analysis that supported NMCI. Such a study may provide additional insight on how to counter the "sticker shock" that has been associated with this program.

2. Analyze Service Level Agreement Compliance Data

Once the NMCI contractor begins to meet the SLAs, data should become available to examine the actual compliance with the SLAs, to identify which SLAs are frequently troublesome for the contractor to meet, and to identify which SLAs are consistently met or exceeded. Such an analysis should provide valuable information to allow the SLAs to be further tailored as the program moves forward in time.

3. Study the Results of Customer Satisfaction Surveys

As customer satisfaction survey results become available, an examination can be made as to whether or not the subjective information solicited provides meaningful insight to the objective responses. A study can also be done to identify potential improvements to the satisfaction surveys to ensure that the NMCI customer satisfaction incentive is applied in a truly meaningful fashion to motivate contractor excellence.

4. Survey Transitioned Former Government Employees

An undetermined number of excess employees have transitioned to the NMCI contractor per the terms of the contract. A study can be done identifying those individuals and surveying the level of their satisfaction (or dissatisfaction) with the transition process. Such a study should identify opportunities for improvement when such large-scale outsourcing initiatives are conducted in the future.

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